

SERVERSCHECK

www.serverscheck.com

Quick Installation Guide For Environmental Sensors

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This product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

For safety reasons, the SensorGateways and sensor probes may never be moved, fully or partially covered while operating.

Warranty:

For the warranty on this product please visit <http://www.serverscheck.com/>

OPENING SENSORGATEWAY OR EXTERNAL SENSOR PROBE VOIDS THE WARRANTY

Certifications:

The ServersCheck sensors are FCC (Class A) & CE (Class B) certified. Certificates can be downloaded from <http://www.serverscheck.com/sensors>

ServersCheck sensors were tested and certified by following international certification bodies:



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For technical support kindly visit <http://www.serverscheck.com/support>

1. ServersCheck Sensors Overview

1.1 Unboxing video of the ServersCheck sensors

We invite you to watch following unboxing video before unpacking, installing and configuring your ServersCheck sensors:

http://www.serverscheck.com/sensors/sensorgateway_unboxing_video.asp



1.2 SensorGateway Quick Overview

The SensorGateway is the heart of the ServersCheck environmental sensors. This base unit is where all the smart logic resides: from connection to monitoring, reporting and alerting.



The SensorGateway is connected to the network via a standard network cable over a 10/100Mbps network. It supports PoE too. This allows for powering the sensors without having to rely on external power adapters. If you don't have a PoE network then a power adapter is optionally available.

In the following sections of this user manual, we are going to describe in detail the configuration and operation of the base unit.

It is recommended to verify the calibration of the temperature probe in your environment and if an offset is noticed, to recalibrate the sensor as explained in section 11 of this document.

The maximum tested length between a PoE switch and the SensorGateway is 100ft or 30 meters. Actuals may vary depending on cable quality, switch and environmental factors.

1.3 External Sensor Probes



ServersCheck uses external sensor probes for its environmental monitoring solution. The flooding/water and power failure sensors from ServersCheck have 2 openings:

- RJ45 connector
- Plug for power adapter

Only the power sensor requires a power adapter plugged into it; the power adapter's current sent to the sensor will be used to analyze the power state.

The flooding sensor doesn't require any power adapter and is powered through the SensorGateway.



IMPORTANT NOTICE FOR WATER / FLOODING SENSORS

The flooding / water detection sensor consists of 2 parts: the sensor (gray box with ServersCheck label on it) and the purple water sensing cable (shown left). Only the purple cable may be submerged – this is the water sensitive part of the sensors! The sensor probe (gray box) has to be kept at all times above the water level.

You can replace the shipped RJ45 cable with a custom standard RJ45 for a length of up to 10 meters or 33 ft between the SensorGateway and an external probe.

2. Connecting the ServersCheck Sensor Probes

2.1. General Instructions

The sensor should be connected as shown in the picture below. The RJ45 to RJ45 cable goes from the external sensor probe into the bottom of the SensorGateway using the RJ45 connector labeled **Serial** (for SensorGateway v1, v2 & v3) SensorGateway v4 or higher have 2 connectors for external probes labeled **Probe1** and **Probe2**



On the top you plug in your network cable connected to a switch and this into the RJ45 connector labeled **LAN/PoE**. If you don't have a PoE enabled network, then you will need the optional 12DC power adapter and plug it into the connector on top labeled **DC 12V**



Important note: It is highly recommended to reboot the SensorGateway after adding or removing any sensor probes for stability. Also, using incorrect power supplies or wrong PoE source may permanently damage the equipment and void the warranty.

2.2. View of connected Temperature Sensor



2.3. View of connected Temperature & Humidity Sensor



- Considerations for humidity sensor:
 - Very dependent on air flow
 - For rooms with different levels of air flows which is usually those in front of AC units and those that aren't, you can calibrate accordingly for more accurate results of ambient level and rack or other specific point levels of humidity

2.4. View of connected Flooding Sensor



2.5. View of connected a Power Failure Sensor



3. Using the Wireless Sensors



3.1. Connect wireless hub to SensorGateway

Firstly, as shown in the picture, connect the SensorGateway to the wireless hub directly with an RJ45 connector as that will be the medium between the wireless sensors and the SensorGateway.

3.2. Connect wireless sensors to SensorGateway

In preparation for this section, make sure to have with you a pin or some similar object that will fit through the tiny hole on the left side of the wireless sensor.

Step 1: Wireless Information Section

Navigate on that page from your SensorGateway's web server and click *Enable* on the "Permit New Wireless Devices" section as seen below.

Permit New Wireless Devices

New wireless sensor must join within 60 seconds.

Step 3: Joining the wireless sensor

Take note how this has a limit of 60 seconds upon clicking as shown above. After doing that, on the small hole on the left side of the wireless sensor, make a series of quick clicks for 4 times with an interval of <1 second per click. You will then see the LED indicator blink 1-3 times on the device.






From the Wireless Information page, you should now see a signal being received on the Rssi column as well as its type. Serial, Name, and Batt Level will be populated approximately 5 minutes. You'll be seeing the following once those have happened.

Wireless Info

No.	Serial	Name	Type	Rssi	Batt Level
1	WT--0013	wtemp1	Temperature	-54 dBm	100 %
2		wtemp2	N/A	-1 dBm	-1 %
3		whum1	N/A	-1 dBm	-1 %
4	WT--0016	wtemp3	Temperature	-43 dBm	100 %
5	WT--0012	wtemp4	Temperature	-44 dBm	100 %
6	WTH-0005	wtemp5	Temperature	-44 dBm	100 %
7	WTH-0005	whum2	Humidity	-58 dBm	100 %
8		Ext. Temp	N/A	-1 dBm	-1 %
9		Ext. Temp	N/A	-1 dBm	-1 %
10		Ext. Temp	N/A	-1 dBm	-1 %
11		Ext. Temp	N/A	-1 dBm	-1 %
12		Ext. Temp	N/A	-1 dBm	-1 %
13		Ext. Temp	N/A	-1 dBm	-1 %
14		Ext. Temp	N/A	-1 dBm	-1 %
15		Ext. Temp	N/A	-1 dBm	-1 %
16		Ext. Temp	N/A	-1 dBm	-1 %

Finally, after which, you will now be able to view your wireless sensors. From here on, the wireless sensor will update the wireless hub every 2 minutes.

Sensor Status

State	Id	Type	Name	Current Value	Warning Range	Down Range	Repeat Alarm	Email	SMS	SNMP Trap
	Internal Temp	Temp	Int. Temp	24.20 °C	< 18.1 or > 37.1	< 15.1 or > 41.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Temperature	Temp	Ext. Temp	22.25 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wireless Sensor	Temp	wtemp1	21.50 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wireless Sensor	Temp	wtemp2	23.16 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wireless Sensor	Humidity	whum1	56.50 %RH	< 45.1 or > 65.1	< 40.1 or > 70.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wireless Sensor	Temp	wtemp4	22.43 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wireless Sensor	Temp	wtemp5	22.33 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Wireless Sensor	Humidity	whum2	57.14 %RH	< 45.1 or > 65.1	< 40.1 or > 70.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<div> <input type="button" value="Update"/> <input type="button" value="Reset"/> </div>										

3.3. Disconnecting the wireless sensors

For security purposes, if one opts to disjoin the wireless sensors from the SensorGateway, you can do so by holding the function button for 10 seconds. Once that's done, you'll see the LED indicator blink 1-3 times and upon navigating to the wireless info section, the triggered wireless sensor should now be unregistered, losing its information starting on the Rssi and Batt Level columns. Upon doing a reload on the browser, the disconnected wireless sensor will look similar to what's highlighted:

Wireless Info

No.	Serial	Name	Type	Rssi	Batt Level
1	WT--0013	wtemp1	Temperature	-60 dBm	100 %
2	WTH-0004	wtemp2	Temperature	-40 dBm	100 %
3	WTH-0004	whum1	Humidity	-48 dBm	100 %
4	WT--0016	wtemp3	Temperature	-41 dBm	100 %
5		wtemp4	N/A	-1 dBm	-1 %
6	WTH-0005	wtemp5	Temperature	-34 dBm	100 %
7	WTH-0005	whum2	Humidity	-58 dBm	100 %

At this point, you have now successfully disconnected your wireless sensor from the SensorGateway.

3.4. Restrictions

Only one (1) wireless hub can be connected to the SensorGateway. While the wireless hub is able to retrieve values from 30 sensors, please be reminded that this doesn't mean 30 physical sensors can be read by it. This dilemma arises when using a temperature and humidity sensor since one physical sensor will count for two logical sensors. Thus when opting for that type of sensor, for example, you'll be restricted to permit 15 temperature and humidity sensors to your wireless hub. But otherwise for the temperature (only) sensor, you can go for up to 30 physical temperature sensors.

3.5. Reconnection Window

For a number of reasons, if a wireless sensor fails to send its update, it will try to connect every minute for 3 times. After that, if it still fails, it will try to reconnect every 5 minutes for 1 hour (12 times). If during that period the sensor still fails to push its data, it will now go to sleep in order to save its battery. From that point onwards, you'll have to manually rejoin the wireless sensor once more as indicated on the Wireless Information section.

4. Configuring the SensorGateway to the Network

The SensorGateway can have 2 types of IPv4 addresses: Fixed or Dynamic (using DHCP).

The default IP address from factory of the SensorGateway is **192.168.11.160**

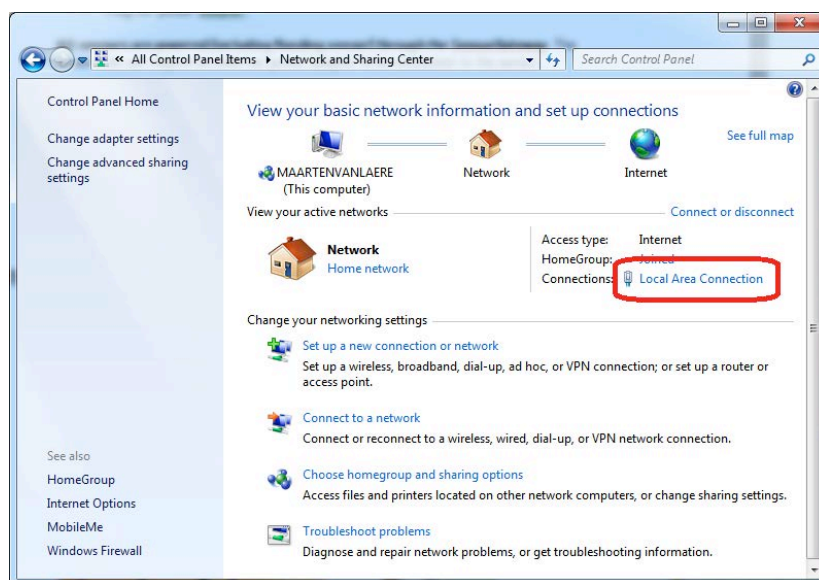
To change the IP address to a different fixed one or to DHCP, proceed as follows.

Make sure the SensorGateway is plugged with a network cable into the network.

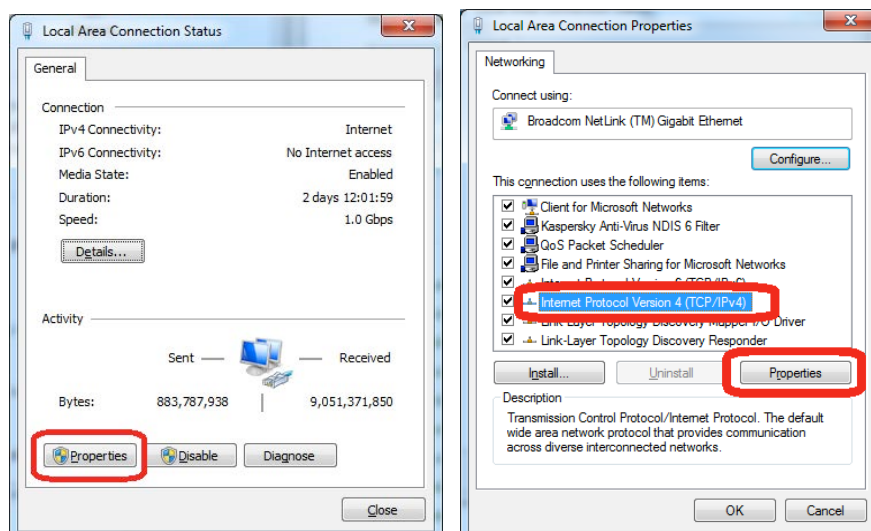
4.1. Set your PC in the same network segment as the SensorGateway

The steps below apply to a Windows 7 system. For other systems (Windows, Mac, *Nix) steps are similar.

Go to **Network Panel > Network & Sharing Center**

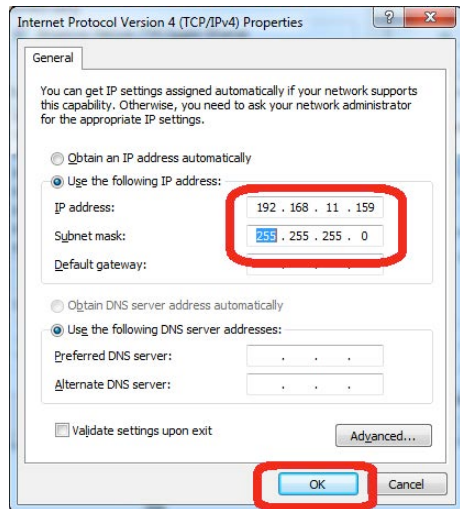


Click on **Local Area Connection** and then click on **Properties**. In the new window select **Internet Protocol Version 4** and click on the **Properties** button.



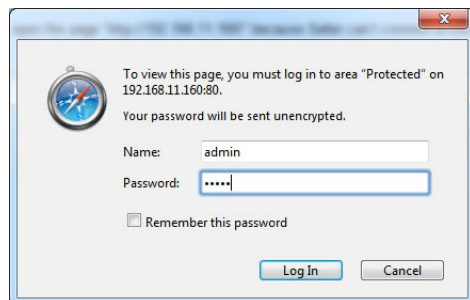
Now you need to set in the Properties window your PC in the same IP range as the sensor. Remember the current settings of your PC before changing any value!

We recommend setting it to 192.168.11.159 as shown below. When done, click on the **OK** button.



4.2. Connecting to the SensorGateway

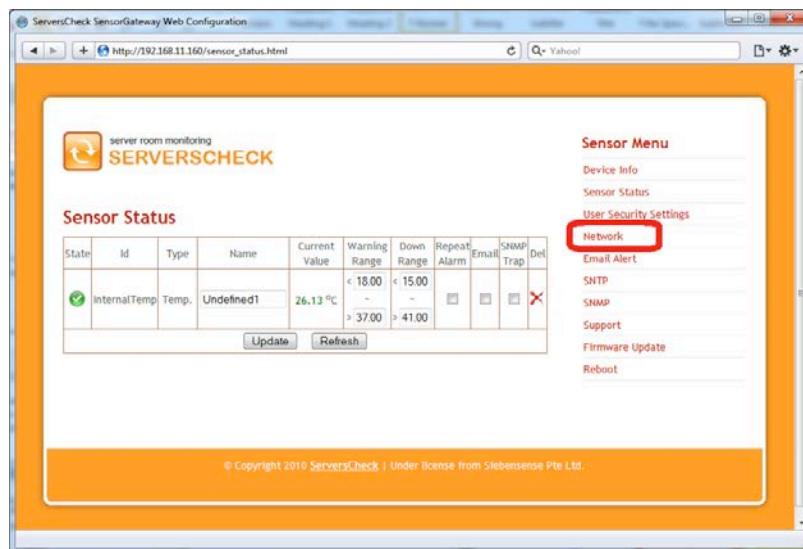
Open your browser and surf to <http://192.168.11.160> A connection will be made to the web server on board of the SensorGateway and you will be prompted for a username & password. Default username and password is: **admin / admin**



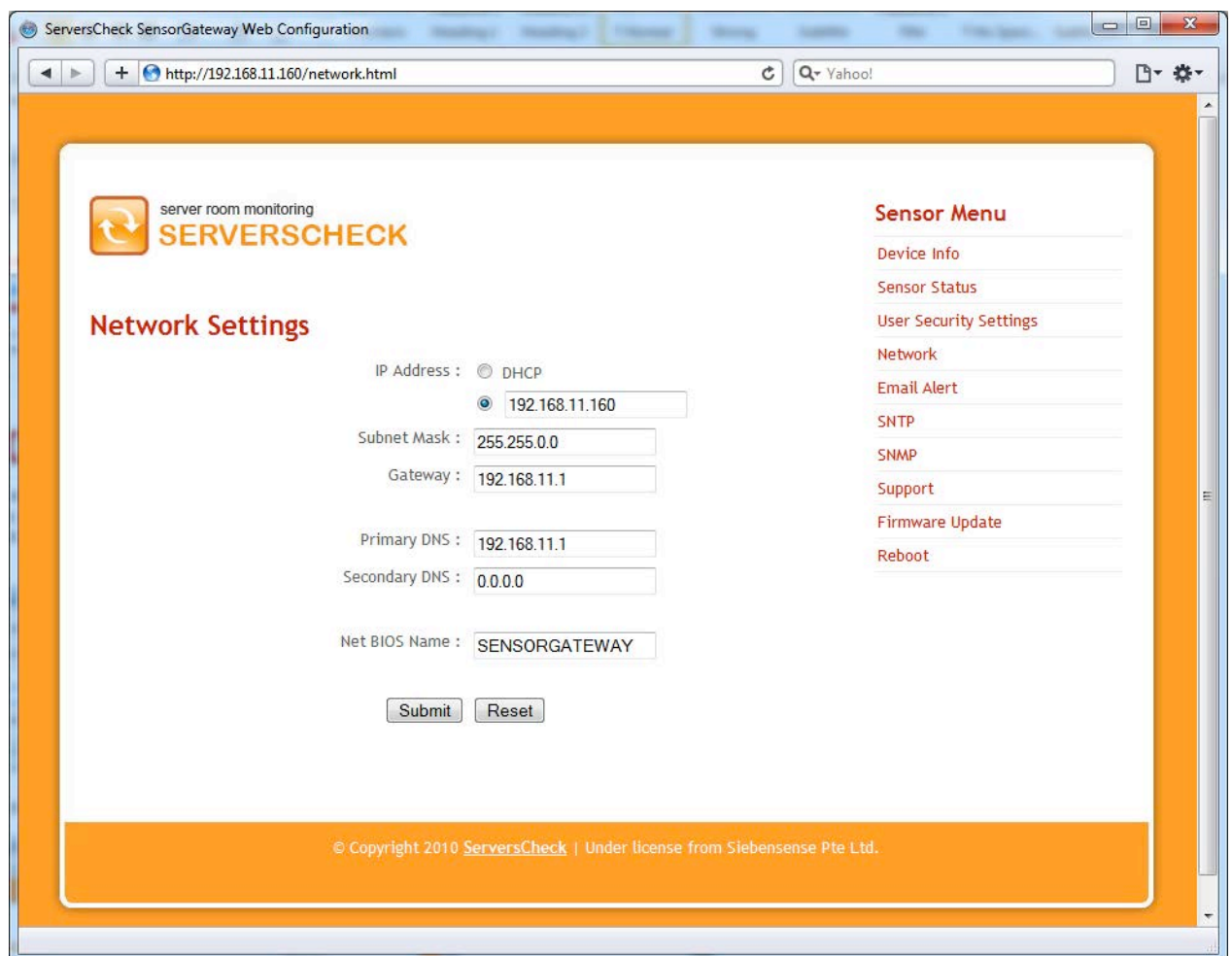
When logged in you will be shown the main screen of the SensorGateway with the first sensor reading being the built-in temperature probe.

Any temperature probe (built-in or external) has been calibrated for accuracy in specific conditions that may defer from your actual setup. Unlike other sensors, the ServersCheck sensors can be easily adjusted to correct the potential offset of the temperature probe. See section

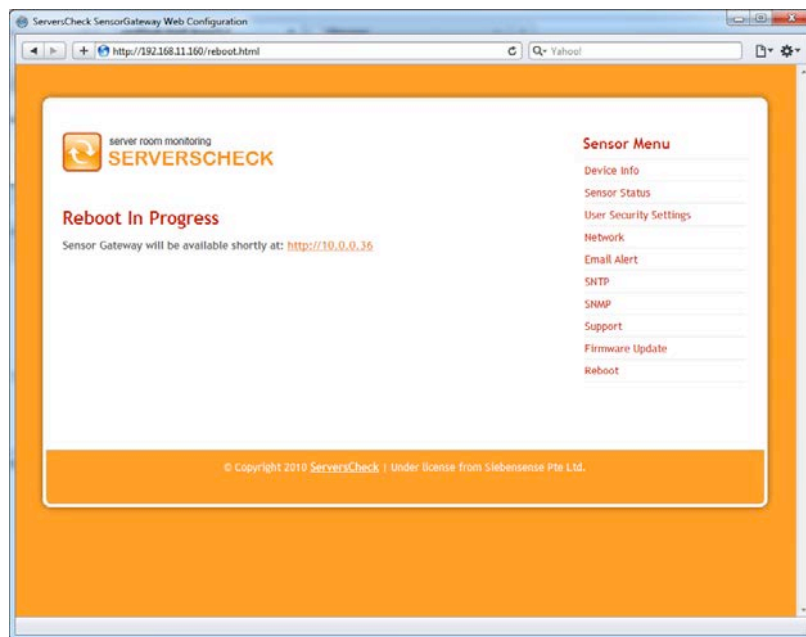
In the main window, click on the **Network** option in the right hand side menu



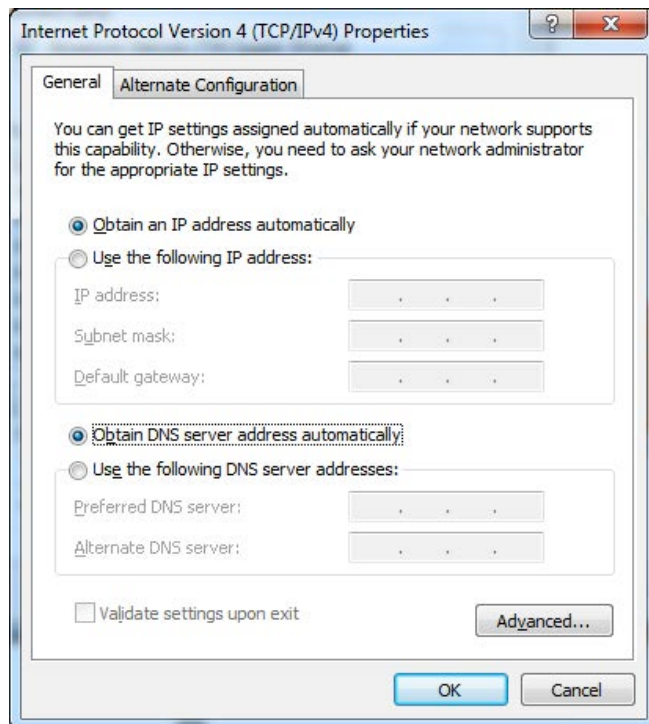
You can now change the SensorGateway's IP address to any value you like: either to DHCP or to a fixed IP. We will now set it to 10.0.0.36



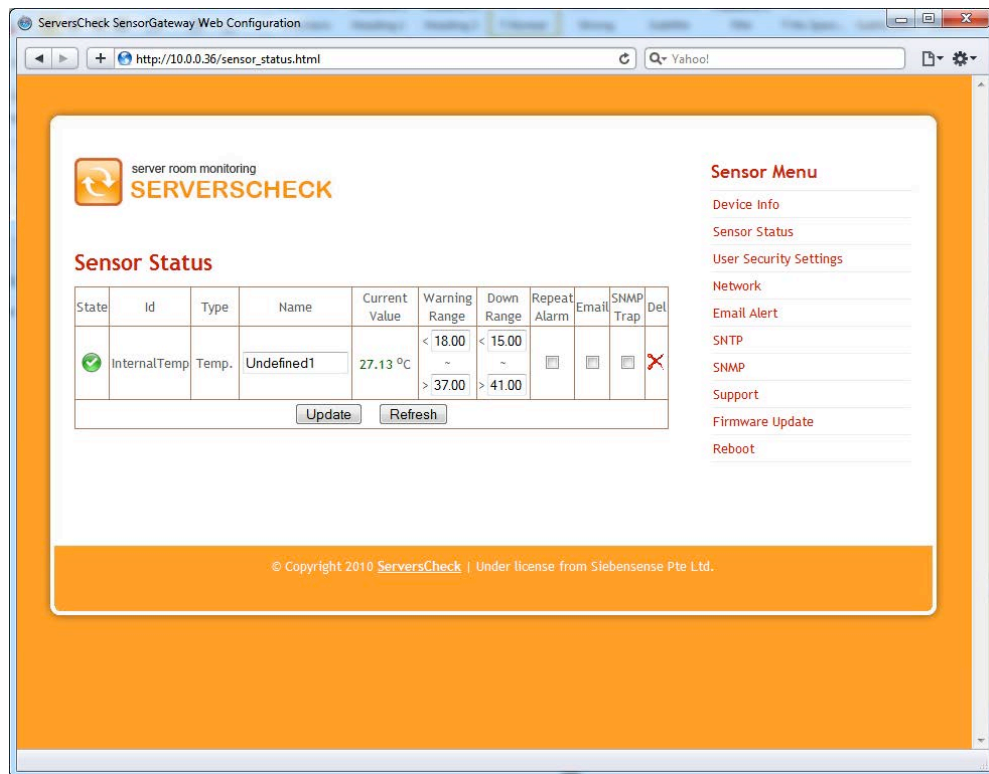
Once the value has been changed, the SensorGateway will reboot itself and will then be accessible through the newly defined IP.



Now reset your system to its normal IP address. In our case we reset it to DHCP.

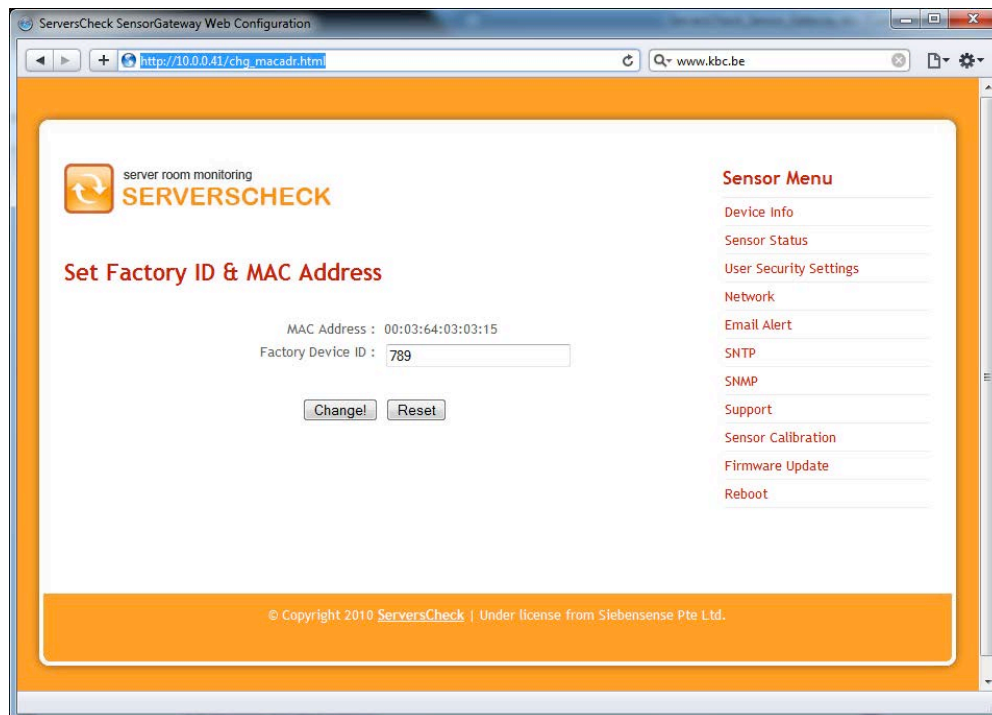


We will now check the SensorGateway and connect to its new IP address by connecting to it using a browser.



4.3. Changing the MAC Address

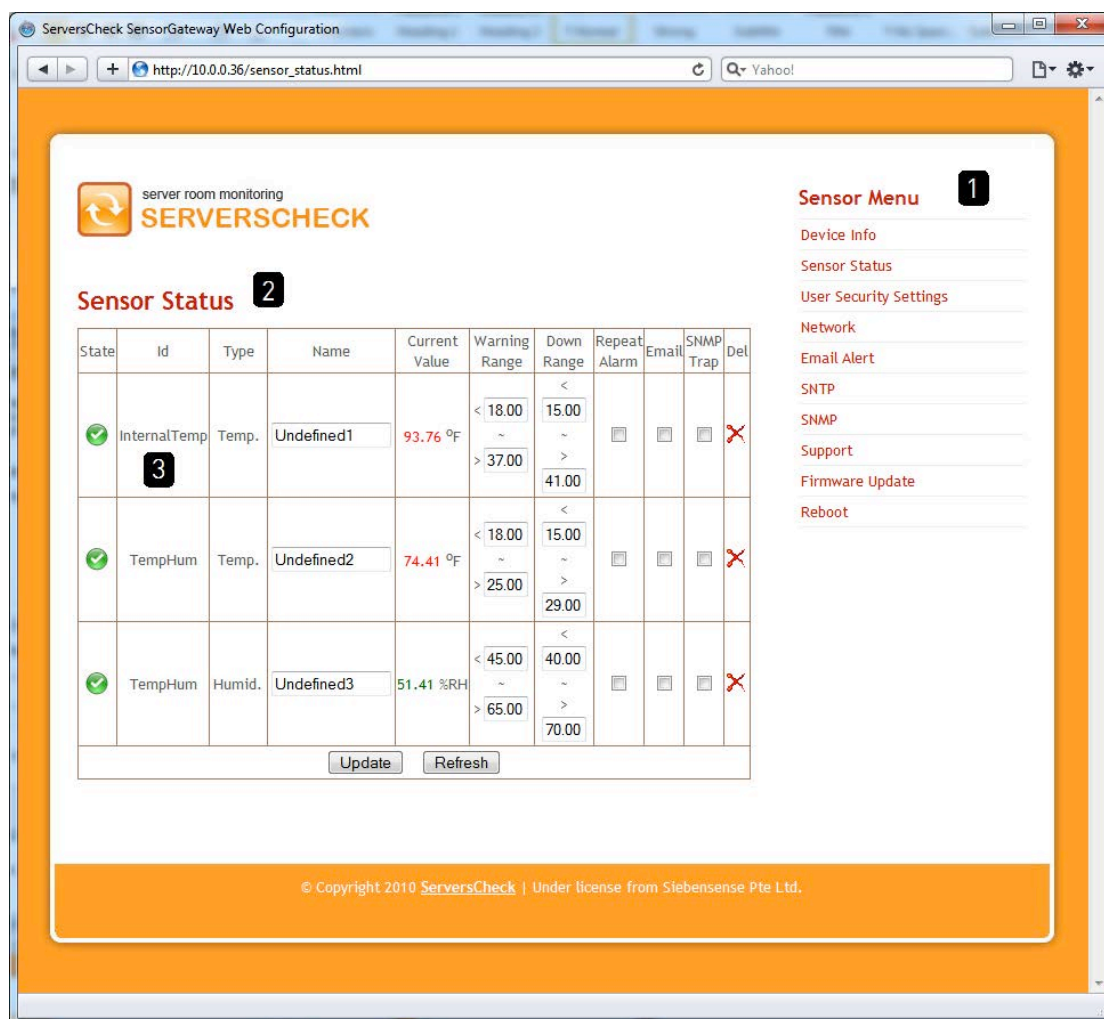
The MAC address of a SensorGateway can be changed by going to the special web page at http://X.X.X.X/chg_macadr.html



Enter a new 4 digit number for factory device ID and the MAC address will be changed.

5. SensorGateway Interface Overview

Connect to the ServersCheck SensorGateway using your browser and on the IP address defined in previous section.



(1) This is the main navigation menu of the ServersCheck SensorGateway. All the different menu options are outlined in the following sections of the user manual.

(2) This is the screen of the actual menu option you are in. Whenever connecting to the SensorGateway, it always shows the Sensor Status page first with the latest sensor readings refreshed every 5 seconds.

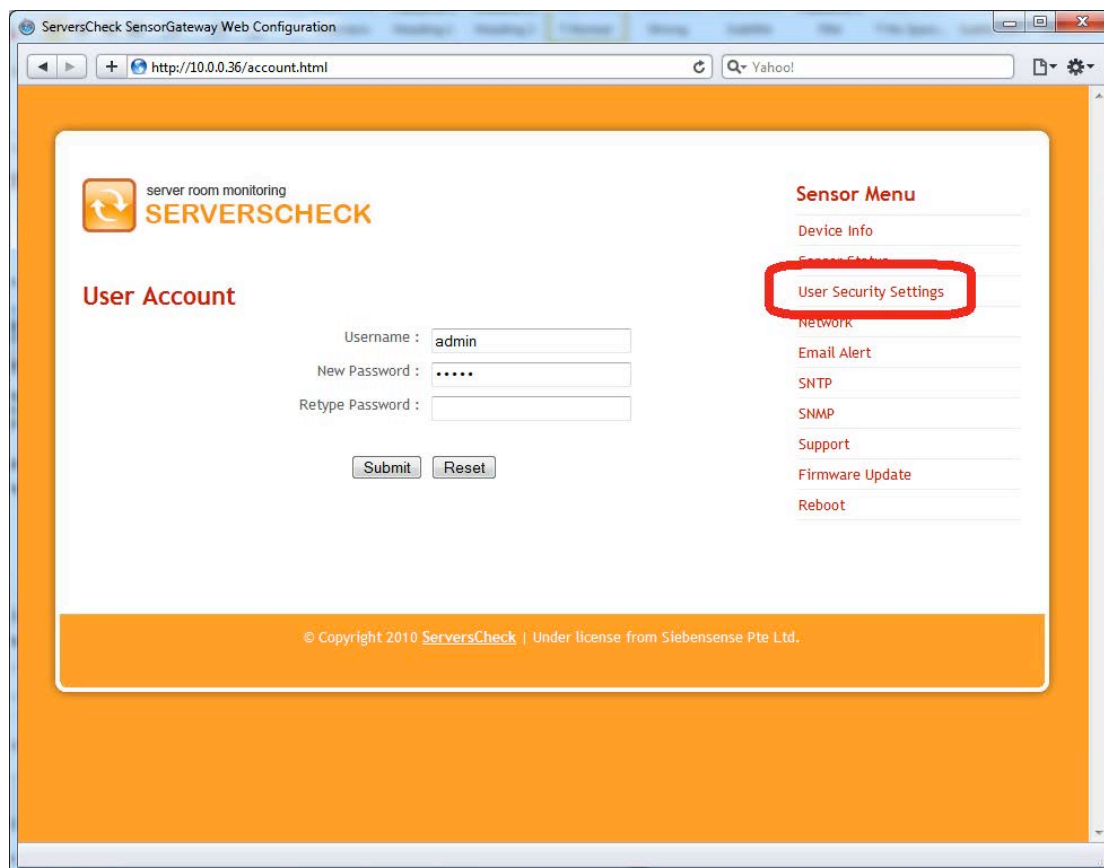
(3) The InternalTemp shown in here is the Internal Temperature Sensor of the SensorGateway. External probes are shown below the built-in temperature probe.

Depending on the conditions in which the SensorGateway and/or probes are placed, a smaller or larger offset compared to actuals from a certified calibration system may be noticed. To solve that, the sensors can be easily recalibrated as explained in section 11 of this document.

6. Configuring the SensorGateway's access security

The SensorGateway's can be username and password secured. Default factory values are **admin / admin**

To change the values click on the **User Security Settings** menu option

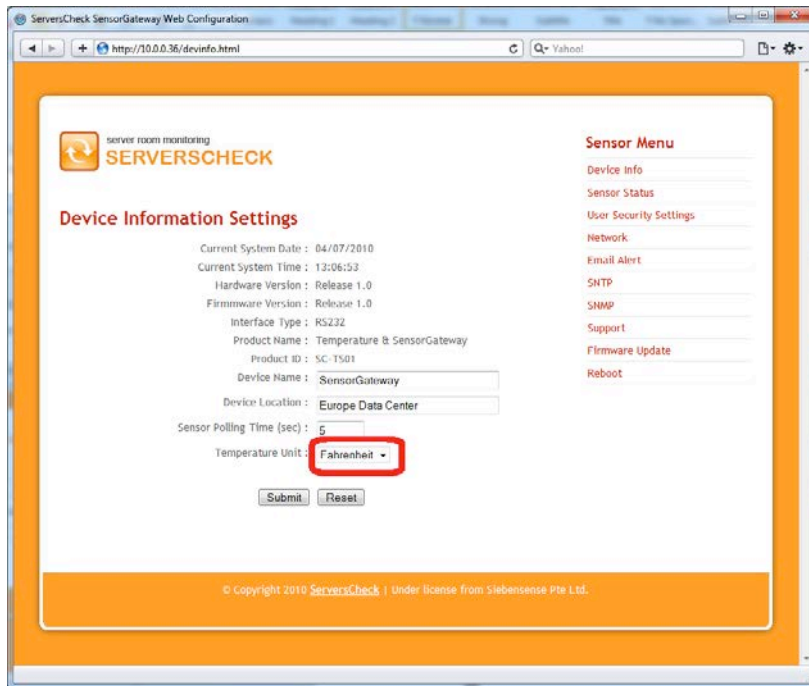


When done click on the **Submit** button. You will be prompted for the new username and password.



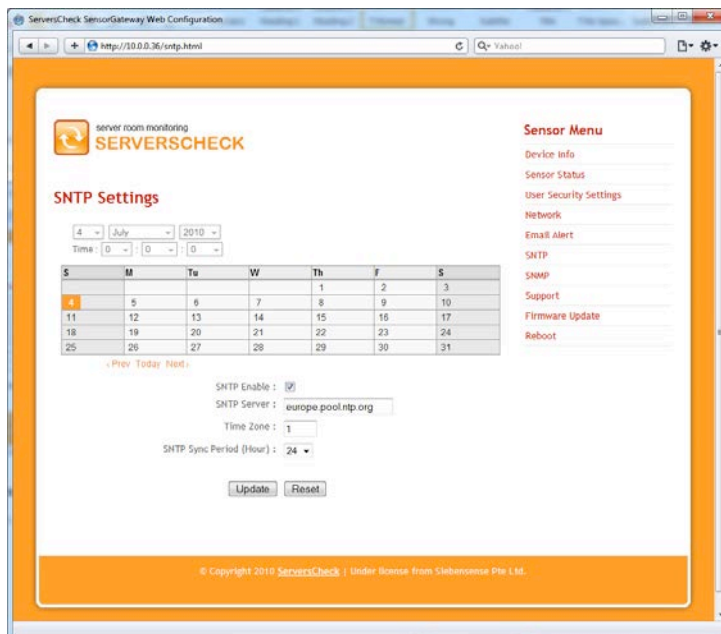
7. Configuring the Fahrenheit / Celsius readings

The default setup is readings in Celsius. However through a simple switch, the sensor readings can be set to Fahrenheit. Simply connect to the SensorGateway, click on the **Device Info** menu option and change the value to **Fahrenheit**



8. Configuring internal clock of the SensorGateway

To modify the internal clock, click on the **SNTP** menu option. You can either set it manually or have it synchronized with a time server as shown in the picture below. Click on **Submit** when done



SensorGateway hardware version 5 users may experience an issue with configuring the time server for a negative time zone. This has been fixed in firmware 3.0.2 which can be downloaded from our website.

9. Configuring the SensorGateway for SNMP

In this section we are going to explain how the ServersCheck sensors can interact with SNMP enabled management systems.

The SensorGateway supports 2 kinds of SNMP messages:

- Pulling: a network management systems requests status for the sensors through SNMP get requests
- Pushing: the SensorGateway pushing SNMP notifications (called SNMP Traps) to network or building management systems

To illustrate SNMP, we will use the free (for personal use) SNMP Browser from Ireasoning available from following url:

<http://ireasoning.com/mibbrowser.shtml>

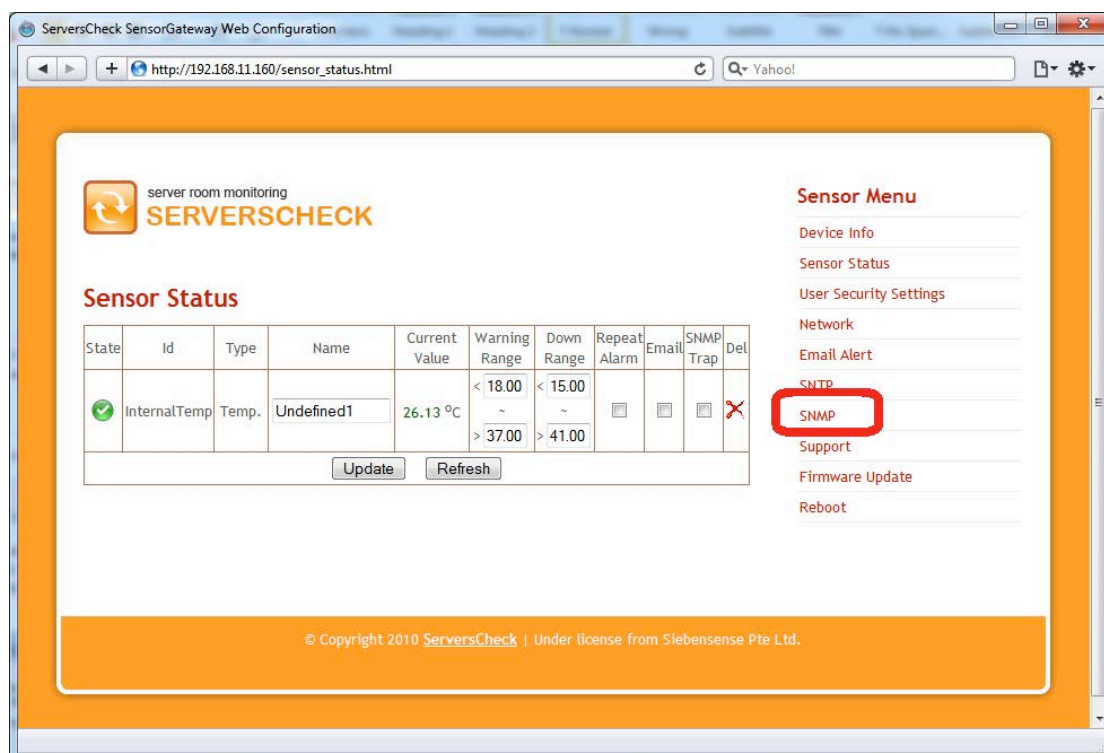
9.1. SNMP Get Requests

In the SensorGateway the built-in SNMP agent needs to be enabled to allow for querying of the sensor by external applications using the SNMP GET protocol.

The SensorGateway has its own MIB file which can be downloaded here:

<http://downloads.serverscheck.com/sensors/sensorgateway.mib>

To enable SNMP, connect to the SensorGateway and click on the **SNMP** menu option



You need now to enable the **SNMP Agent** (default port for this UDP 161). If you want to use a different community string, then you can change the value too. Community string is limited to 8 characters. Default value for a read community is typically **public**

Make sure the community string does not exceed 8 characters

ServersCheck SensorGateway Web Configuration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Go to a Website

Thu Feb 14 20:29:36 2013 - Sensor - Shock - TEMPERATURE: Error level: 66.76 (returned value) greater than 40

SERVERSCHECK

server room monitoring
SERVERSCHECK

SNMP Settings

SNMP Agent
Agent Enable ☒
Port: 161 Version: SNMPv2
SNMP V2 Community
Read Community: public
Write Community: public

SNMP V3 USM
Username:
Auth Key: Protocol: MD5
Privacy Key: Protocol: AES

SNMP Trap
Trap Enable: ☐
Trap Version: SNMPv1
Trap IP: 0.0.0.0 Port: 0
V2 Community:

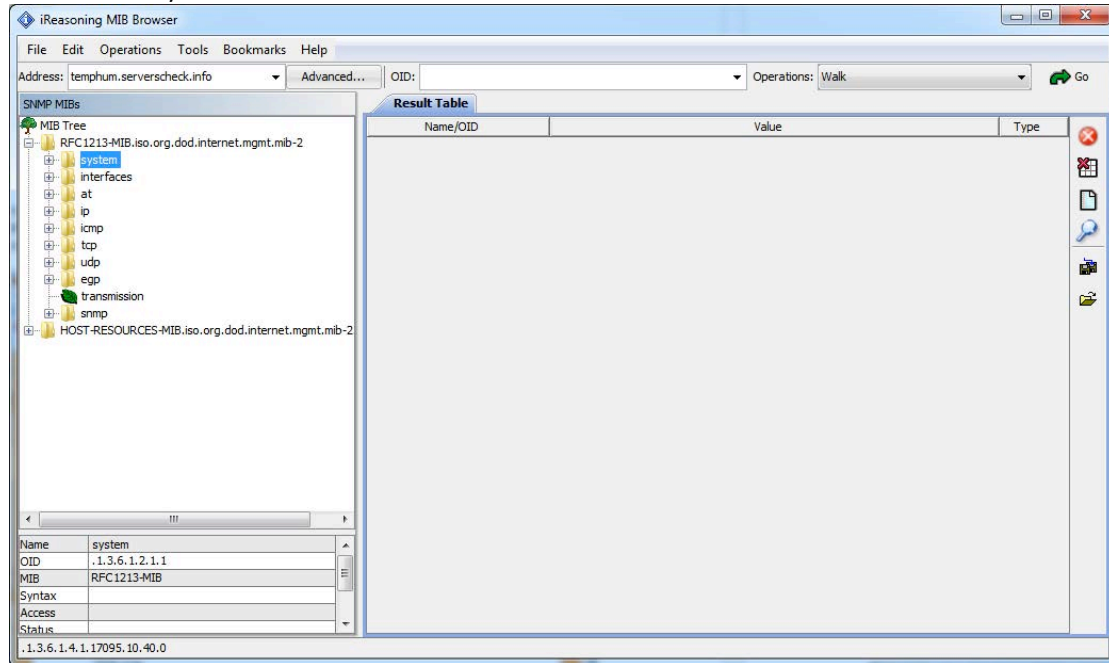
© Copyright 2013 ServersCheck | Under license from Siebensense Pte Ltd.

Sensor Menu

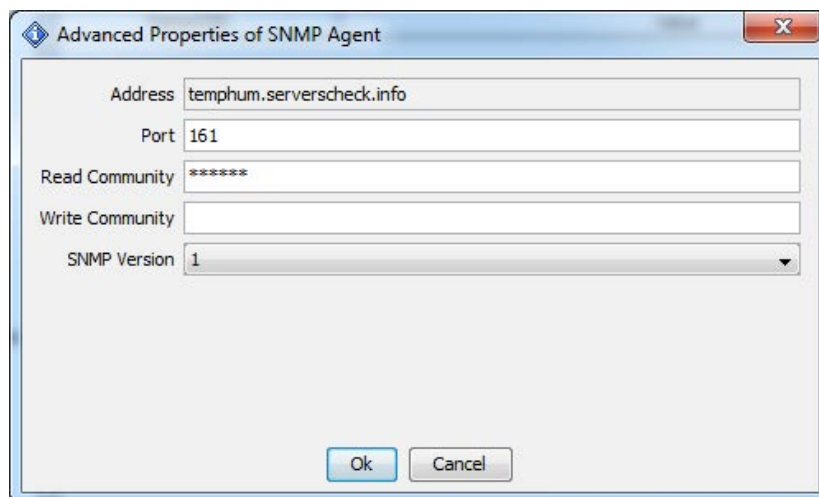
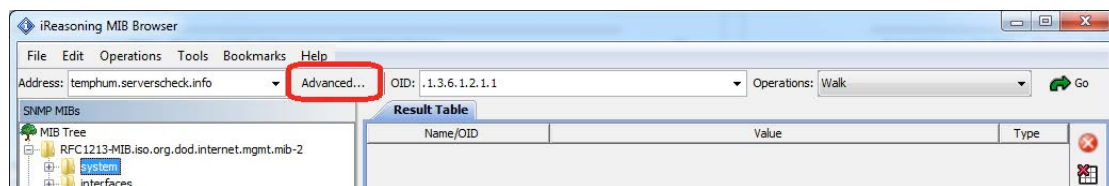
- Device Info
- Sensor Status
- User Security Settings
- Network
- Email Alert
- SMS Alert
- SNTP
- SNMP
- Support
- Sensor Calibration
- Firmware Update
- Reboot

Click on the **Submit** button when done.

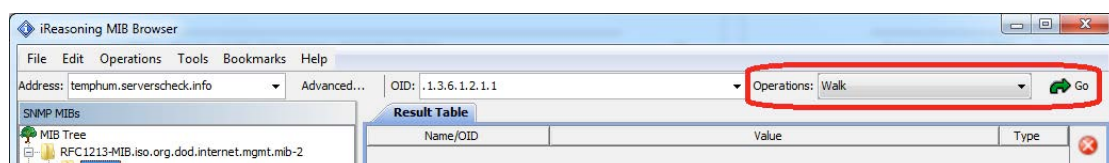
Now let's open the iReasoning MIB Browser. Set the **Address** field to the IP address of your SensorGateway



Click on the **Advanced** button

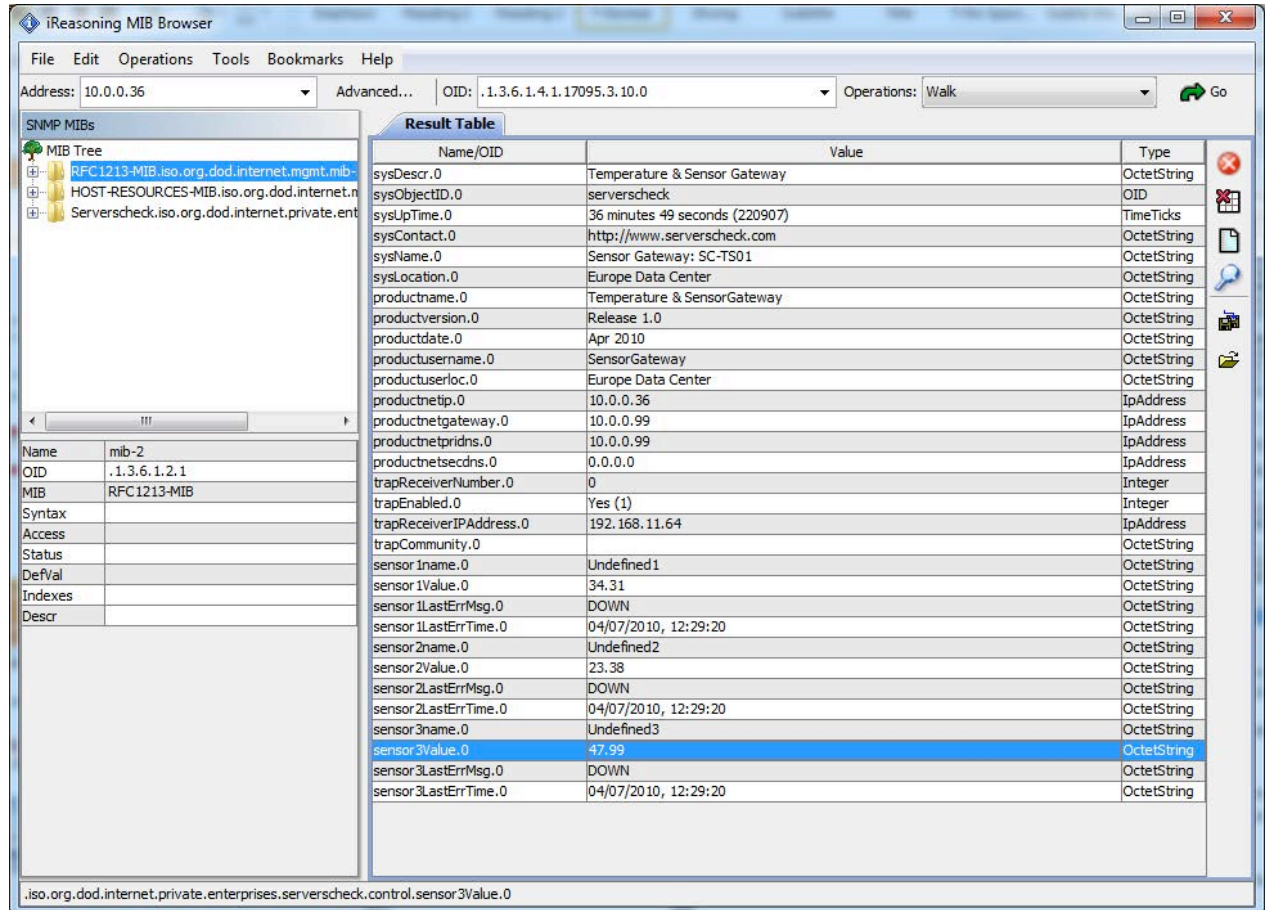


In above screen confirm the Port as previously defined as well as the read community. Click on the **OK** button.



In the main screen, set the **Operations** drop down box to **Walk**

When done, click on the **Go** button



In the above screen copy you see all the SNMP parameters as made available by the ServersCheck SensorGateway.

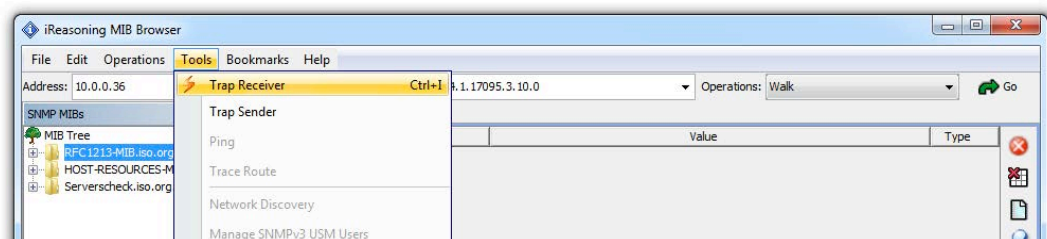
At the bottom you will see the values of the internal temperature sensor connected to the appliance (**sensor1Value.O**) and then of the values returned by external sensor probes connected to it.

In this example we added an external temperature & humidity probe to it. By clicking on a field, you can see the matching OID for that field at the top. In above example the OID for the humidity reading is **.1.3.6.1.4.1.17095.3.10.0**

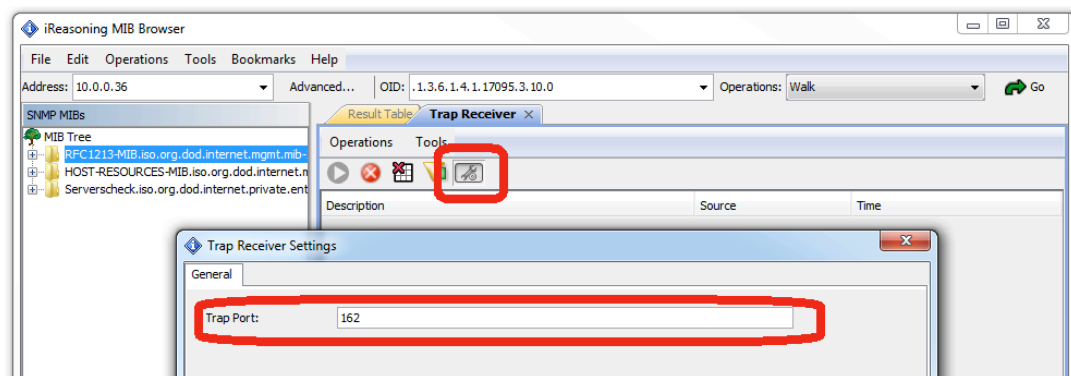
9.2. SNMP Traps

When threshold values are exceeded or on failure (water detection or power failure), the SensorGateway can send out SNMP Traps to network management systems.

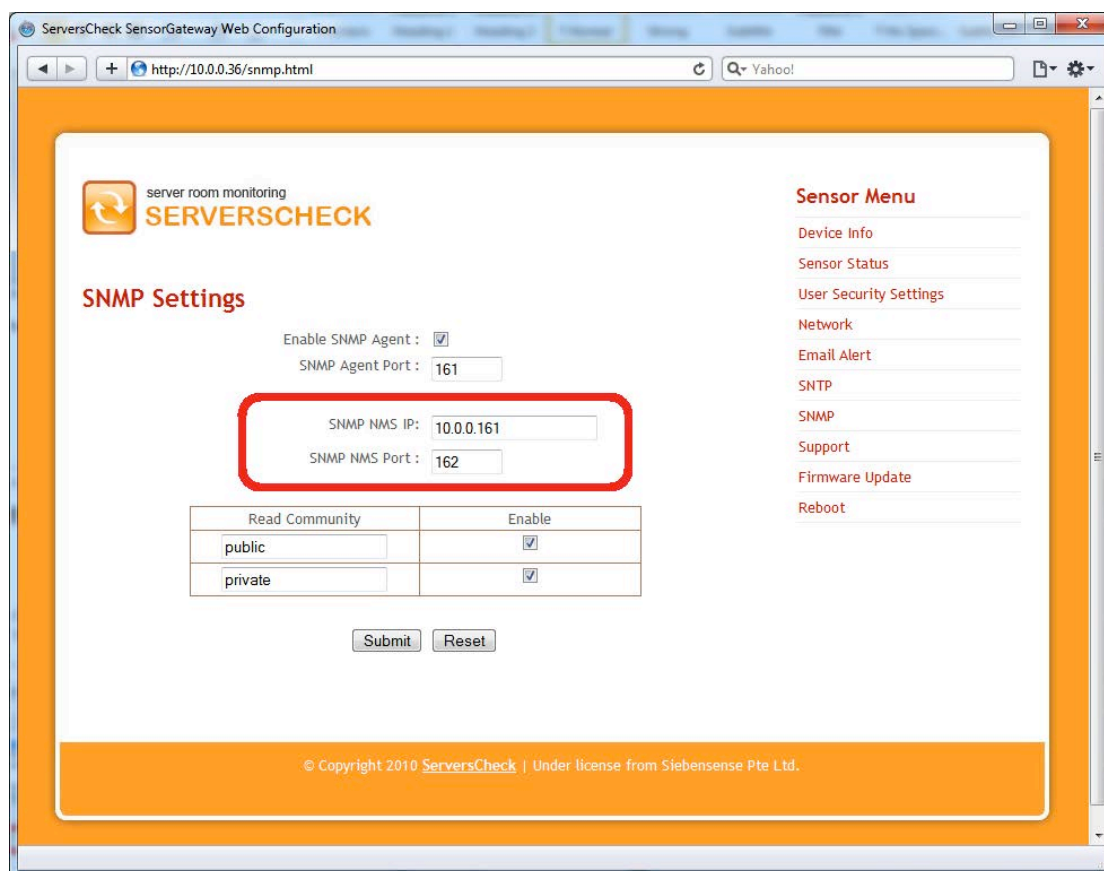
On our system we have installed the iReasoning MIB Browser. Go to **Tools > Trap Receiver**



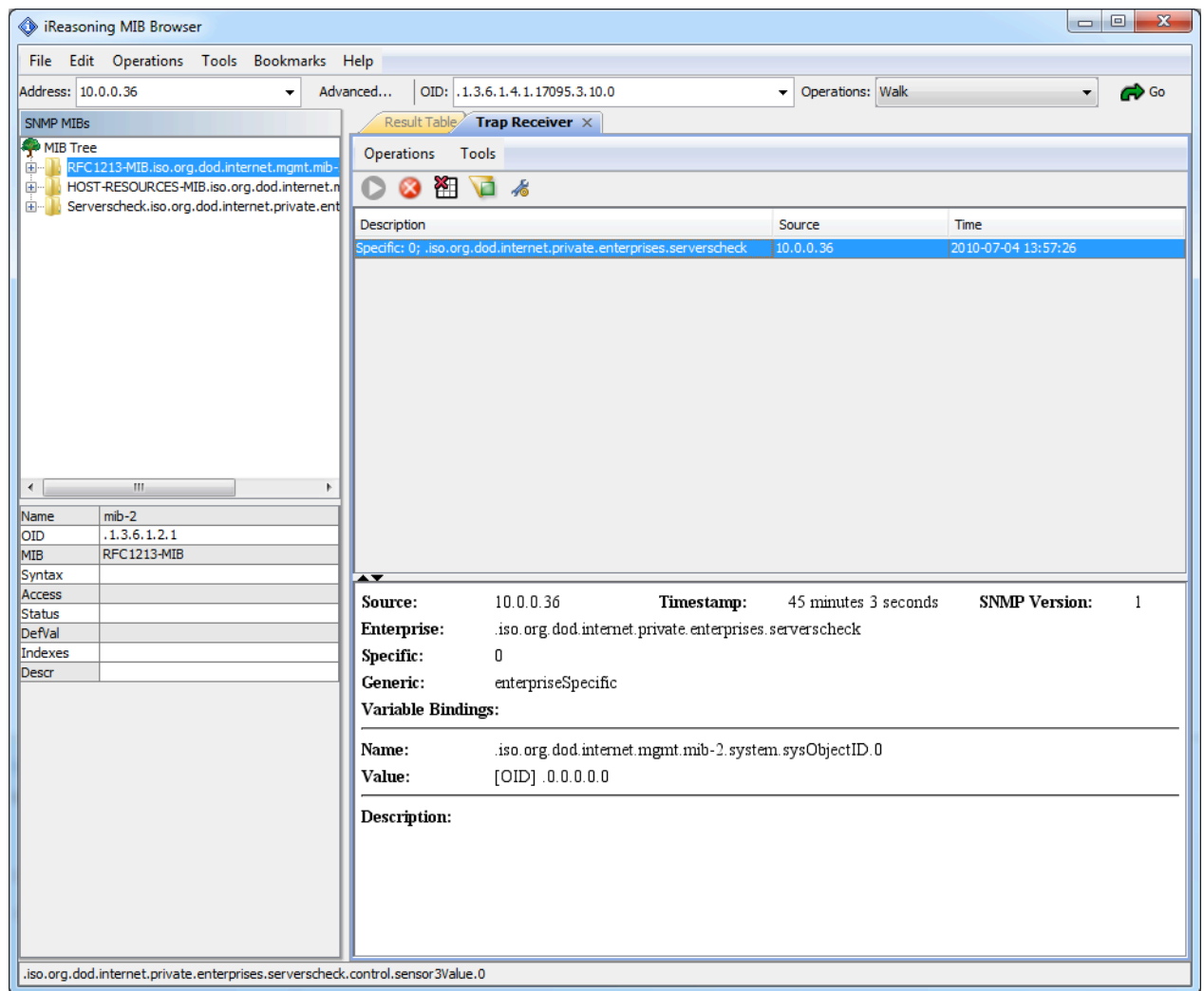
Set the Trap Receiver Port. This is the UDP port used by the SNMP Trap Receiver to receive incoming messages. In our example we set it to 162



In the SensorGateway we now need to define the IP address of the system on which the SNMP Trap Receiver runs and the port to use. Those settings can be found in the **SNMP** menu option



Click on the **Submit** button when done. The SensorGateway will now send a test SNMP Trap to the Trap Receiver (iReasoning in this example).



Above shows the SNMP Trap as received by iReasoning MIB Browser

10. Email alerting from SensorGateway

The ServersCheck sensors can generate autonomous alerts via SNMP Traps and also via email.

To setup email alerting, click on the **Email Alert** tab on the right hand side menu.

The screenshot shows a web browser window titled "ServersCheck SensorGateway Web Configuration" with the address bar displaying "http://10.0.0.36/email.html". The page has an orange header with the "SERVERSCHECK" logo and a "Sensor Menu" on the right. The "Email Alert" section is active, showing configuration fields for SMTP settings and email content. The "Email Alert Enable" checkbox is checked. The "SMTP Server" field is redacted with a black box. The "SMTP Port" is set to 25. "SMTP Authentication" is checked. The "SMTP Username" and "SMTP Password" fields are empty. The "From address" is "Sensor@ServersCheck.com", the "To" is "demo@serverscheck.com", and the "Cc" is empty. The "Email Subject" is "ServersCheck Sensor Alert" and the "Email Body" is "Sensor in Rack 1 has an issue!". "Submit" and "Reset" buttons are at the bottom. A copyright notice at the bottom reads "© Copyright 2010 ServersCheck | Under license from Siebensense Pte Ltd."

This screen consists of 3 main parts:

- Mail server settings
- Mail heading settings (from, to, subject ...)
- Mail content (body)

For email alerting, ServersCheck supports standard outgoing mail servers like the ones used by ISP's (SMTP relay servers) or corporate SMTP mail servers requiring standard username & password authentication. SSL mail servers are not supported. For use of SSL, web-based emails are recommended.

In some cases it may happen that you don't have a non-SSL server available in your network or from your ISP. In such situations, we have 3 alternative solutions that may fix the issue.

10.1. Gmail as E-mail Server

In order to use GMAIL as a mail server, you need to have a Gmail account and port 25 should not be blocked by your ISP. If it is blocked by your ISP and your ISP doesn't offer an 'open' mail server then see option 9.2. below

Email Alert Enable : ☒

SMTP Server :

SMTP Port :

SMTP Authentication : ☐

SMTP Username :

SMTP Password :

From address :

To :

Settings are:

SMTP Server: **aspmx.l.google.com**

SMTP Port: **25**

SMTP Authentication: **Off / Unchecked**

From address: [yourgmailname@gmail.com](#)

To address: same as from address

The emails will arrive in your SPAM filter unless you whitelist the IP address on Gmail from which you are sending the alerts.

For SSL, the settings will be:

SMTP Server: **smtp.gmail.com**

SMTP Port: **465**

SMTP Use SSL: **Checked**

SMTP Authentication: **Checked**

SMTP Username/Password: **Filled out**

From/To address: Filled out. Not required to be the same.

Note: Only version 5 SensorGateways are supported with Gmail's SSL ever since they offered RSA 2048-bit encryption.

10.2. Tunneling an SSL connection

You can use STunnel to allow non-SSL devices such as the SensorGateway to connect to a secure mail server. STunnel should be running on a computer in your network that is up 24/7. The SensorGateway will connect to STunnel using non-SSL SMTP then STunnel will bridge the connection to for example Google Apps using an SSL connection. STunnel can be downloaded from: <http://www.stunnel.org/>

Your stunnel.conf file should look like:

```
-- begin stunnel.conf --
cert = stunnel.pem
socket = l:TCP_NODELAY=1
socket = r:TCP_NODELAY=1
client = yes

[pop3s]
accept = 110
connect = pop.gmail.com:995

[imaps]
accept = 143
connect = imap.gmail.com:993

[smtp]
accept = 25
connect = smtp.gmail.com:465
-- end stunnel.conf --
```

10.3. Mail service like AuthSMTP.com

If you don't have a non-SSL mail server on your network and you don't want to use stunnel and you can't use Gmail because your operator blocks it, then we could recommend AuthSMTP.com which provides a solid SMTP relay service.

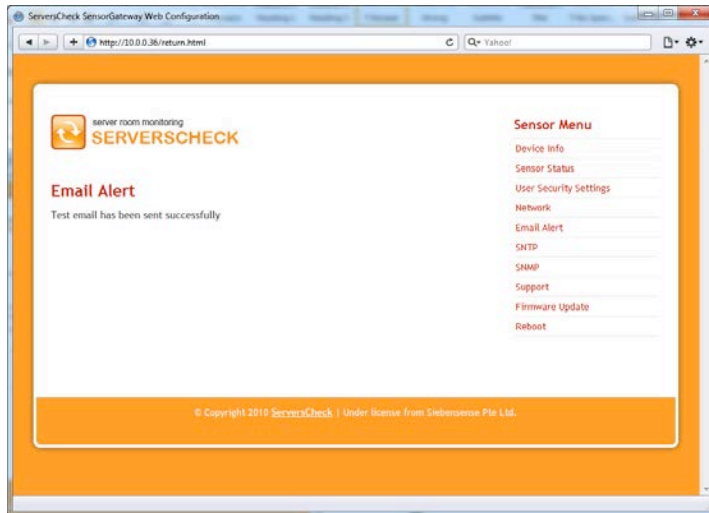
With AuthSMTP.com you can subscribe to use their relay servers on a port such as 2525 while using standard authentication (non-SSL).

More information on <http://www.authsmtp.com>

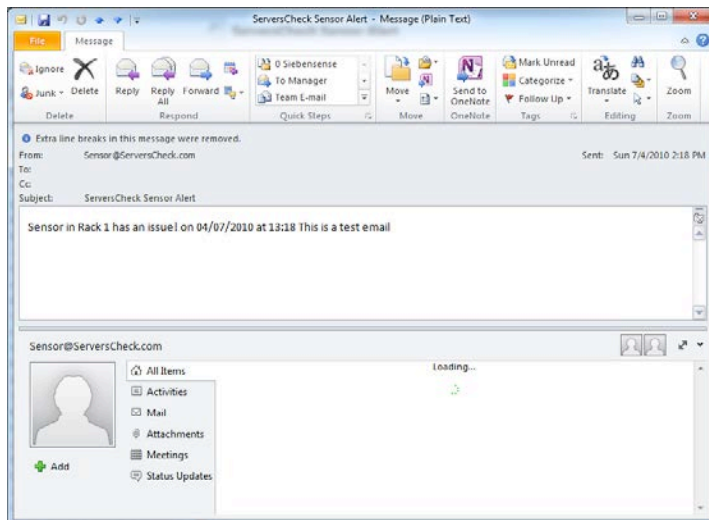
If you need to send alerts to multiple recipients, then the best option is to create a group in your mail server to send out the email alerts to multiple people.

In the email body we suggest to put in the location of the sensor. When you have multiple sensors, a user easily knows where to look for when receiving the alert.

When done click on the **Submit** button. It will now try to send a test message to the mail account.



Below is the test email as received in Outlook 2010.



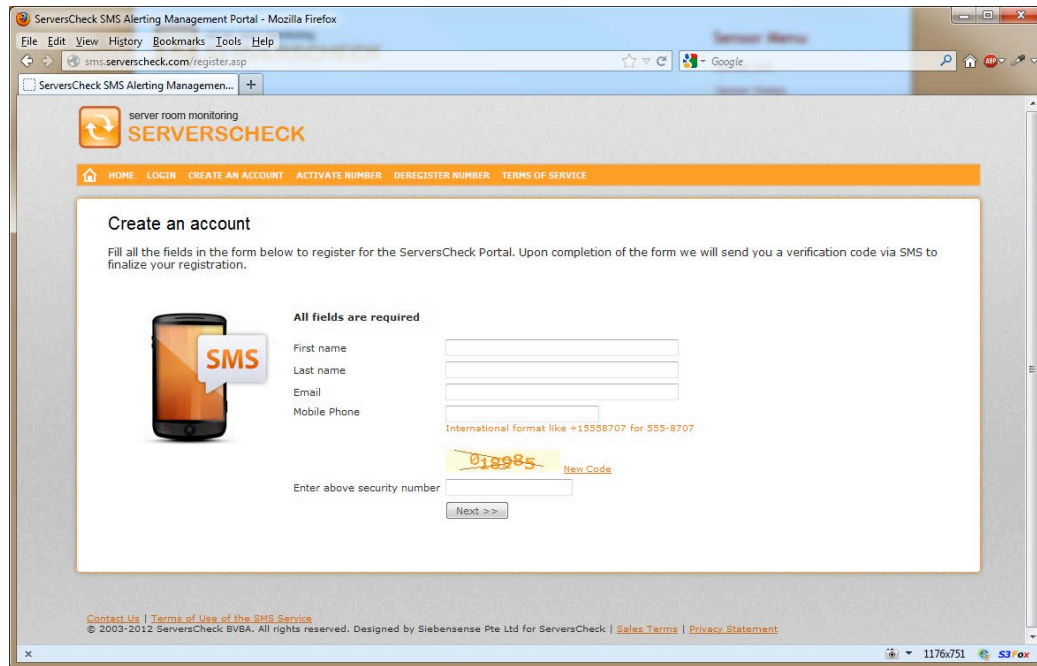
11. SMS alerting from SensorGateway

Requirements for SMS alerting:

- An active account created on <http://sms.serverscheck.com>
- Firmware 2.10 or higher on SensorGateways
- Outbound communication on port 80 from SensorGateway to Internet

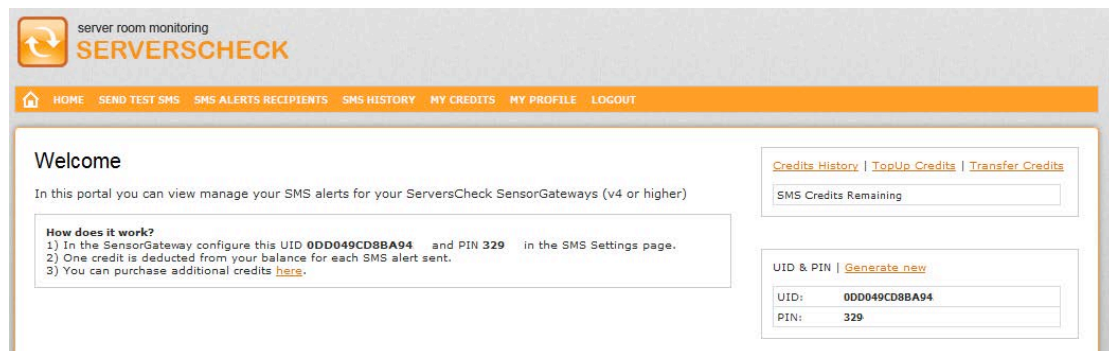
For SMS alerting SMS messages are sent by ServersCheck's SMS Gateway. SensorGateways make a connection over TCP/IP with the SMS Gateway servers for delivering SMS messages.

As per above requirements you need to create an account first on <http://sms.serverscheck.com>



The screenshot shows the 'Create an account' page of the ServersCheck SMS Alerting Management Portal. The page is titled 'Create an account' and includes instructions: 'Fill all the fields in the form below to register for the ServersCheck Portal. Upon completion of the form we will send you a verification code via SMS to finalize your registration.' The form has four required fields: 'First name', 'Last name', 'Email', and 'Mobile Phone'. A note specifies the international format for the mobile phone number: '+15558707 for 555-8707'. Below the fields is a 'New Code' button and a 'Next >>' button. The page also features a navigation bar with links: HOME, LOGIN, CREATE AN ACCOUNT, ACTIVATE NUMBER, DEREGISTER NUMBER, and TERMS OF SERVICE. At the bottom, there are links for 'Contact Us', 'Terms of Use of the SMS Service', 'Sales Terms', and 'Privacy Statement'.

When you have completed above steps to create your account, then you will receive an email with your username and temporary password to login.

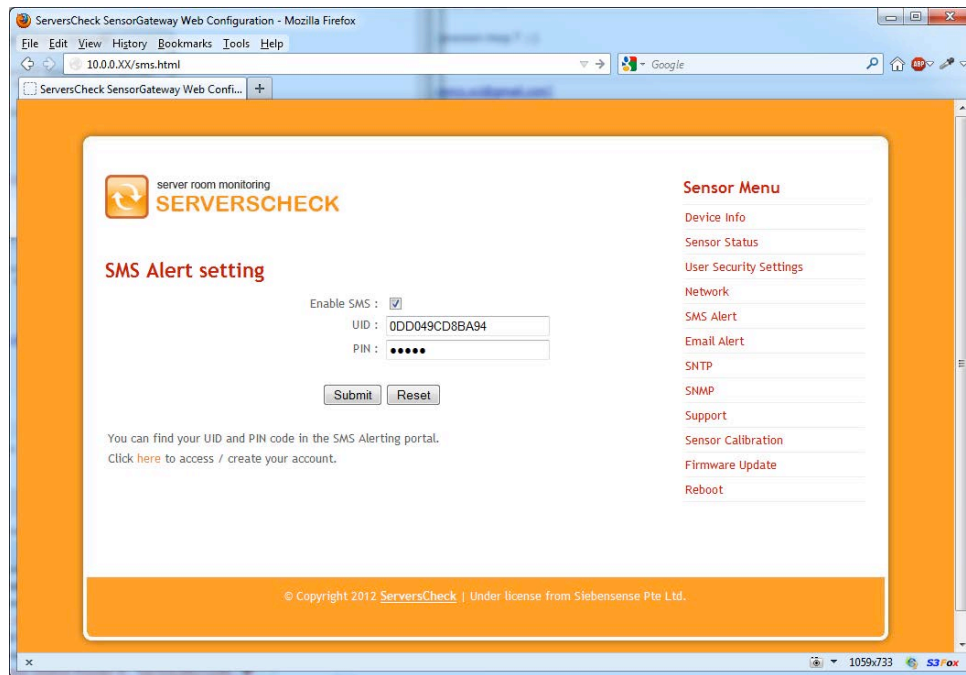


The screenshot shows the user dashboard of the ServersCheck SMS Alerting Management Portal. The page is titled 'Welcome' and includes a message: 'In this portal you can view manage your SMS alerts for your ServersCheck SensorGateways (v4 or higher)'. There is a 'How does it work?' section with three steps: 1) In the SensorGateway configure this UID 0DD049CD8BA94 and PIN 329 in the SMS Settings page. 2) One credit is deducted from your balance for each SMS alert sent. 3) You can purchase additional credits [here](#). The dashboard also features a 'Credits History' section with links for 'Credits History', 'TopUp Credits', and 'Transfer Credits'. Below this is a 'SMS Credits Remaining' field. At the bottom, there is a 'UID & PIN' section with a 'Generate new' button and fields for 'UID' (0DD049CD8BA94) and 'PIN' (329).

You need to note down following configuration info: the **UID** and **PIN** codes. These have to be entered in the SensorGateway in order to SMS alerting work.

From the above personal page you can check your SMS credits status, purchase new credits or check your SMS alerting history. You can also add additional SMS recipients if you want SMS alerts to be sent to multiple mobile numbers.

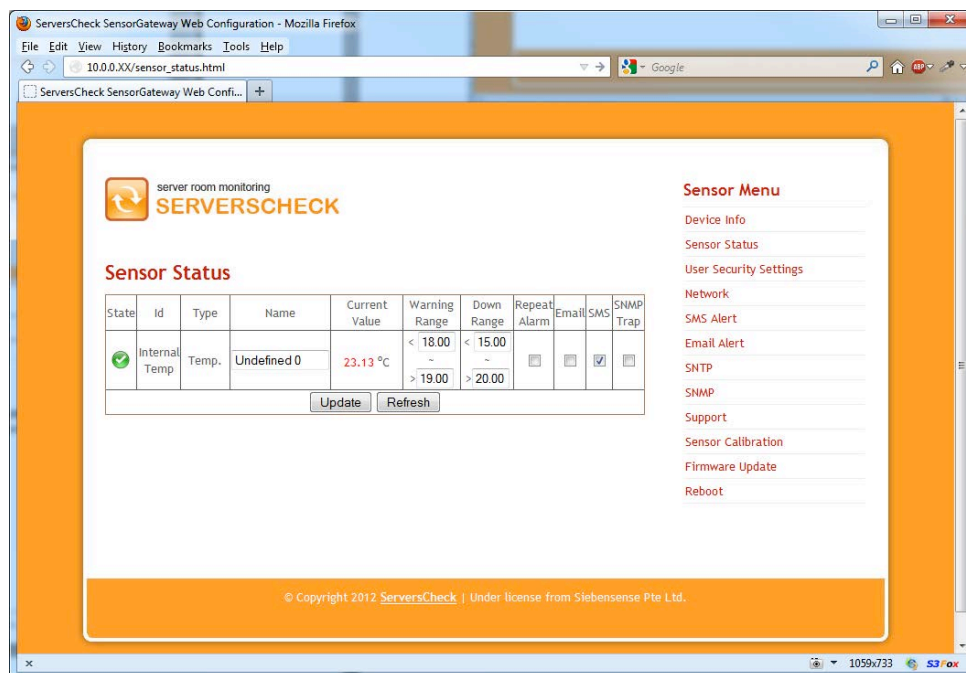
Now connect to your SensorGateway and click on the **SMS Alert** menu option



Activate the **Enable SMS** option by clicking on the checkbox. Then enter the **UID** and **PIN** from your account page. Click on the **Submit** button

It will now send a SMS test alert to your cell phone.

Didn't you receive the SMS test alert? Verify your network settings especially if the DNS server has been configured correctly in the **Network** menu settings. If the DNS server has been correctly defined then make sure that no firewall is blocking outgoing HTTP calls from the SensorGateway to the ServersCheck SMS Gateway.



Now click on the SMS checkbox to receive alerts via SMS for the item you are monitoring.

12. Setting threshold values in the SensorGateway for alerting

Connect to the SensorGateway and click on the **Sensor Status** menu option.

The screenshot shows the 'SensorsCheck SensorGateway Web Configuration' interface. The main content area is titled 'Sensor Status' and contains a table with the following data:

State	Id	Type	Name	Current Value	Warning Range	Down Range	Repeat Alarm	Email	SNMP Trap	Del
✓	InternalTemp	Temp.	Undefined1	35.06 °C	< 18.00 ~ > 37.00	15.00 ~ 41.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
✓	TempHum	Temp.	Undefined2	24.13 °C	< 18.00 ~ > 25.00	15.00 ~ 29.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗
✓	TempHum	Humid.	Undefined3	52.84 %RH	< 45.00 ~ > 65.00	40.00 ~ 70.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✗

Below the table are 'Update' and 'Refresh' buttons. The sidebar on the right is titled 'Sensor Menu' and contains the following options: Device Info, Sensor Status (selected), User Security Settings, Network, Email Alert, SNTP, SNMP, Support, Firmware Update, and Reboot. The footer of the page reads: '© Copyright 2010 ServersCheck | Under license from Siebensense Pte Ltd.'

State: this shows if the internal sensor or the external sensor probe is working or not

Id: identifier of type of sensor

Type: type of reading for the sensor

Name this is the name of the sensor and will be used in alerting

Current value: this is the latest reading for both the internal sensor and the external sensor probe

Warning range: below the minimum value and above the maximum value a WARNING alert will be sent. Current value color will change to orange

Down range: below the minimum value and above the maximum value a DOWN alert will be sent. Current value color will change to red. DOWN overrules WARNING

Repeat alarm: when set then this will trigger an alert to be sent every 5 minutes

Email: when checked then email alerts will be sent for this sensor value

SNMP Trap: when checked then a SNMP Trap will be this value

Delete: removes the value from the list. It can't be undone and will require to restore to factory defaults.

13. Logging

13.1. Alert Log

Alert Log : Download All >HERE<

2013/11/26 07:00:17	Recover	temp2	25.00
2013/11/26 07:00:14	Warning	temp2	25.06
2013/11/26 07:00:05	Recover	temp2	25.00
2013/11/26 06:59:59	Warning	temp2	25.06
2013/11/26 06:59:55	Recover	temp2	25.00
2013/11/26 06:59:49	Warning	temp2	25.06
2013/11/26 06:59:46	Recover	temp2	25.00
2013/11/26 06:58:39	Recover	temp3	25.00
2013/11/26 06:58:36	Warning	temp3	25.06
2013/11/26 06:58:21	Recover	temp3	25.00
2013/11/26 06:58:17	Warning	temp3	25.06
2013/11/26 06:58:11	Recover	temp3	25.00
2013/11/26 06:57:59	Warning	temp3	25.06
2013/11/26 06:57:56	Recover	temp3	25.00
2013/11/26 06:57:46	Warning	temp3	25.06
2013/11/26 06:57:43	Recover	temp3	25.00
2013/11/25 19:48:04	Warning	temp3	25.06
2013/11/25 19:48:01	Recover	temp3	25.00
2013/11/25 19:47:36	Warning	temp3	25.06
2013/11/25 19:47:33	Recover	temp3	25.00

Alert Log

User Security Settings

Network

Email Alert

SMS Alert

SNTP

SNMP

Support

Sensor Calibration

Firmware Update

Reboot

Each time a threshold is hit, an entry is automatically recorded on the log. And as seen on the screenshot, recovery alerts are also included. The SensorGateway is able to store up to 2048 entries and are downloadable in CSV format. On column F of the CSV file, the following legend is used for the alerts - 0:Recovery; 1:Warning; 2:Down.

13.2. XML Output

[←](#) [→](#) [↺](#) 192.168.11.80/xmlOutput.xml

This XML file does not appear to have any style information associated with it. The document tree is shown below

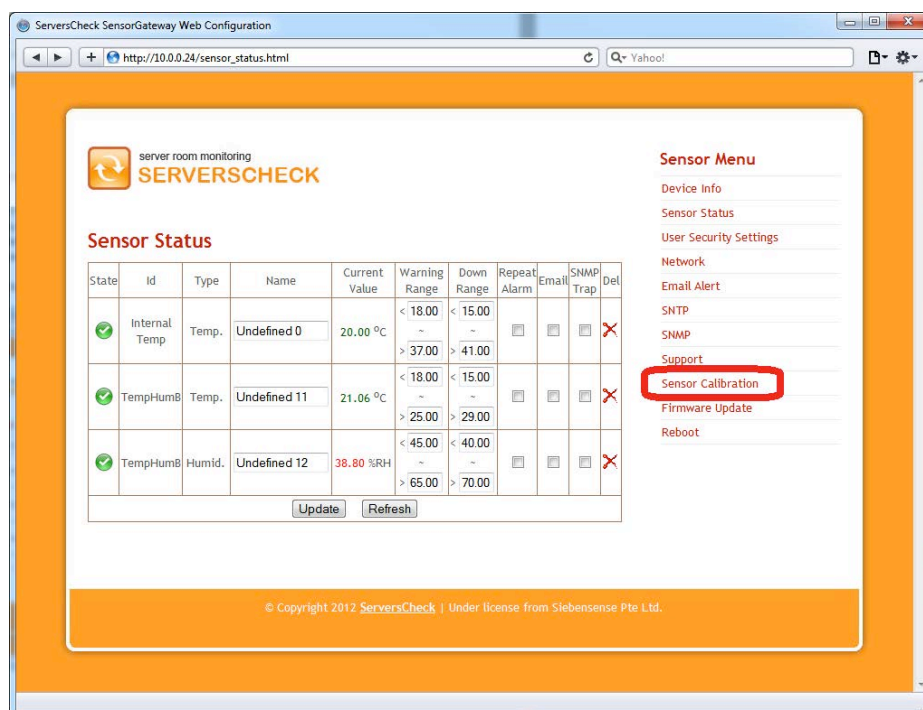
```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<note>
  <status>
    <from>192.168.11.80</from>
    <from>sgw17</from>
    <ssname0>temp1</ssname0>
    <ssvalue0>21.74</ssvalue0>
    <ssname1>Ext. Temp</ssname1>
    <ssvalue1>20.87</ssvalue1>
  </status>
  <alerts>
    <alert1>temp1,21.86,NORMAL,26 November 2013,13:54:37</alert1>
    <alert2>temp1,71.80,DOWN,26 November 2013,13:54:13</alert2>
    <alert3>temp1,24.34,NORMAL,25 November 2013,20:10:24</alert3>
    <alert4>temp1,44.14,DOWN,25 November 2013,20:07:41</alert4>
    <alert5>Ext. Temp,25.00,NORMAL,24 November 2013,19:17:44</alert5>
    <alert6>Ext. Temp,25.06,WARNING,24 November 2013,19:17:43</alert6>
    <alert7>Ext. Temp,25.00,NORMAL,24 November 2013,19:15:52</alert7>
    <alert8>Ext. Temp,25.06,WARNING,24 November 2013,19:15:50</alert8>
    <alert9>Ext. Temp,25.00,NORMAL,24 November 2013,19:14:49</alert9>
    <alert10>Ext. Temp,25.06,WARNING,24 November 2013,19:14:48</alert10>
    <alert11>Ext. Temp,25.00,NORMAL,24 November 2013,19:14:16</alert11>
    <alert12>Ext. Temp,25.06,WARNING,24 November 2013,19:14:14</alert12>
    <alert13>Ext. Temp,25.00,NORMAL,24 November 2013,19:13:29</alert13>
    <alert14>Ext. Temp,25.06,WARNING,24 November 2013,19:13:28</alert14>
    <alert15>Ext. Temp,25.00,NORMAL,24 November 2013,19:13:11</alert15>
  </alerts>
</note>
```

The log can be accessed by appending *xmlOutput.xml* at the end of the SensorGateway's IP address/DNS entry as seen on the screenshot. More than the alerts, it also gives you the current status of the device. This option shows the latest 500 alert entries.

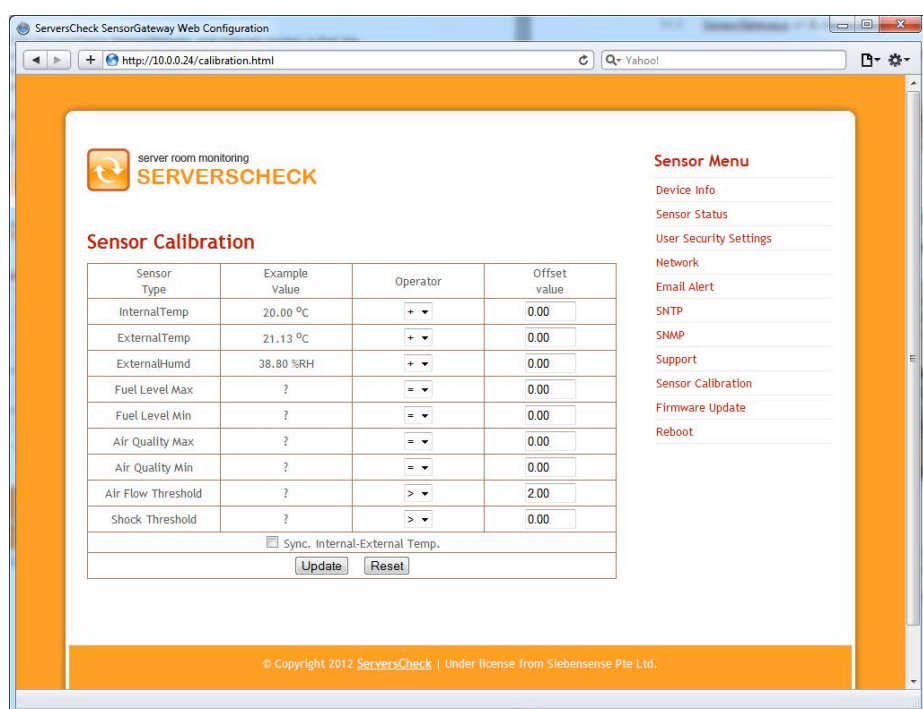
14. Sensor Calibration

A unique feature of the ServersCheck SensorGateway and external probes is that the SensorGateway has a calibration feature available from the web interface. This feature allows to correct temperature and humidity readings based upon, for example a NIST Traceable measurement system.

To recalibrate the built-in or external probes, click on the **Sensor Calibration** menu option of the main screen.



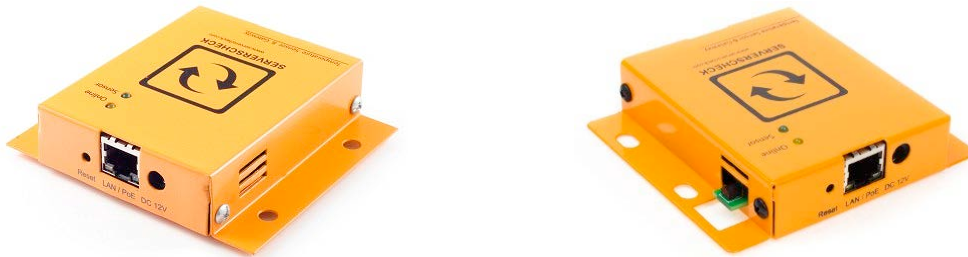
Adjust your sensor readings by modifying the offset value (either + or -) and click on **Update**.



15. Factory resetting of SensorGateway

15.1. SensorGateways v1 and v2

Following only applies to SensorGateways v1 & v2 - the matching models are shown below



You can always hard reset the SensorGateway to its default factory settings as follows.

Resetting the device to factory default will result in all settings to be lost



- 1) Plug in power adapter or PoE cable
- 2) Within 2 seconds from plugging the power adapter or PoE cable, push the **Reset** button with a pen or similar and hold it for 5 seconds before releasing it.
- 3) Wait until the yellow LED doesn't blink anymore
- 4) Reconnect to the SensorGateway's web interface at <http://192.168.11.160>

15.2. SensorGateways v3 and v4

Following only applies to SensorGateways v3 and v4 - matching the picture below

Kindly note that due to a mistake in the boot loader of v3 units, the internal system specifications show it as a v2 unit. However those are v3 units (or v4 for dual sensor probes) when they match the picture below.

You can always hard reset the SensorGateway to its default factory settings as follows.

Resetting the device to factory default will result in all settings to be lost



- 1) Remove the external sensor probe
- 2) Remove the power adapter or PoE cable
- 3) Push the **Reset** button
- 4) While the **Reset** button is pushed, plug in the power adapter or PoE Cable
- 5) After 10 seconds the Green & Yellow led's will be on steady (not blinking)
- 6) Remove power adapter or PoE cable
- 7) Wait 3 seconds
- 8) Plug in power adapter or PoE cable
- 9) After a few seconds both Green & Yellow led's are blinking
- 10) Reconnect to the SensorGateway's web interface at <http://192.168.11.160>

15.3. SensorGateway v5

Following only applies to SensorGateways v5

Resetting the device to factory default will result in all settings to be lost

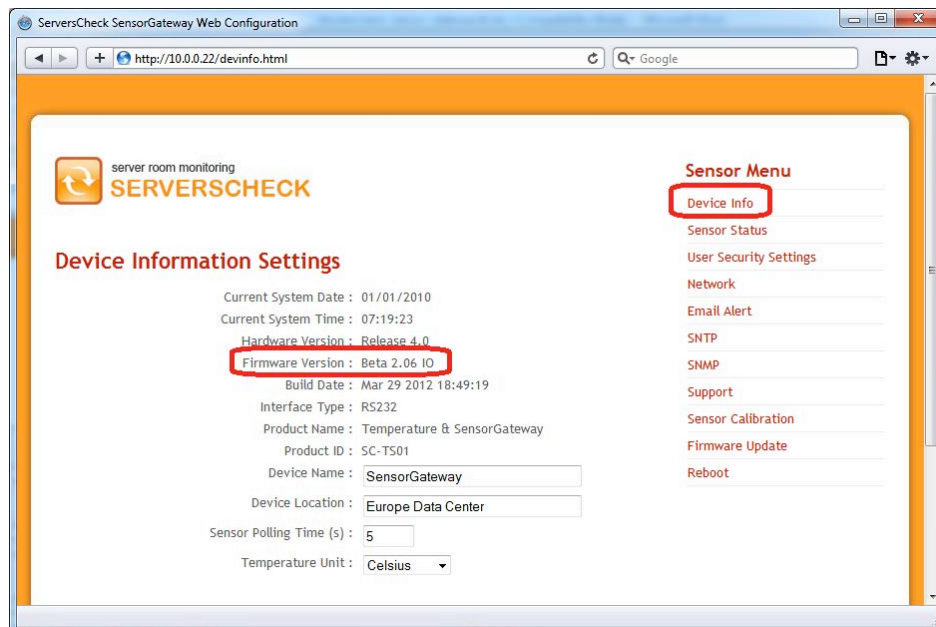


- 1) Remove the external sensor probe
- 2) Remove the power adapter or PoE powered network cable
- 3) Push the **Reset** button
- 4) While the **Reset** button is pushed, plug in the power adapter or PoE powered network cable
- 5) Hold it for 5 seconds before releasing it. The yellow LED should be blinking fast.
- 6) Wait until the yellow LED is not blinking fast anymore.
- 7) On the LED display, the Sensorgateway will reboot. After a few seconds both Green & Yellow led's should be flashing slowly.
- 8) While the PoE or power adapter is plugged in, push the **Reset** button
- 9) Hold it for 5 seconds before releasing it.
- 10) On the LED display, the Sensorgateway will reboot. After a few seconds both Green & Yellow led's should be flashing slowly .
- 11) Reconnect to the SensorGateway's web interface at **<http://192.168.11.160>**

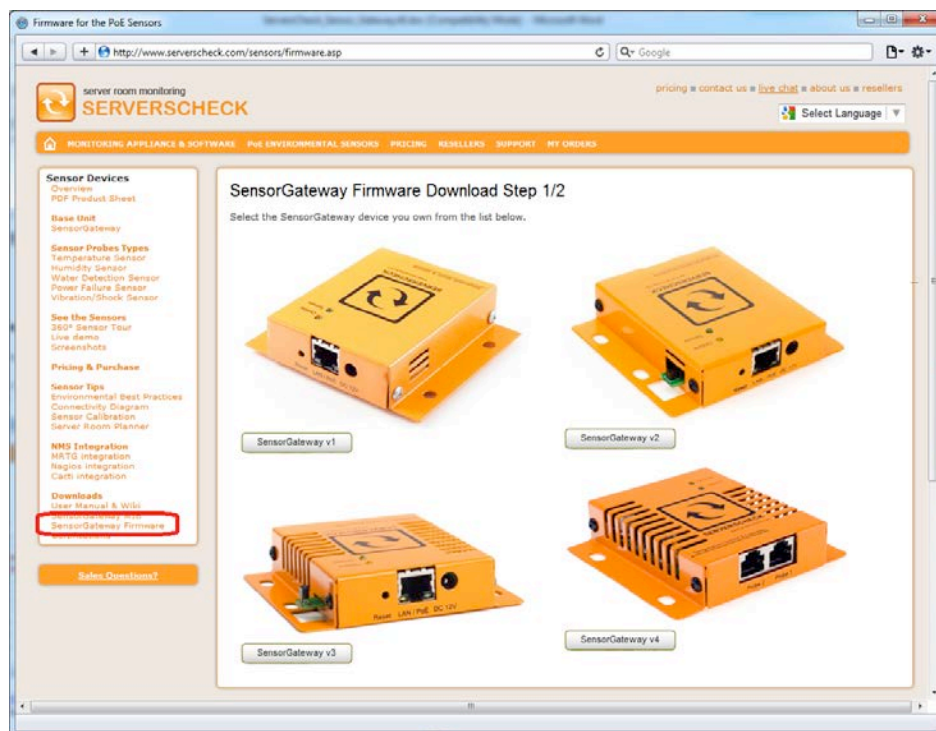
16. Updating the firmware of the SensorGateway

ServersCheck may release from time to time new firmware versions for its SensorGateways.

You can check your currently installed firmware version by going to your SensorGateway and then clicking on **Device Info**

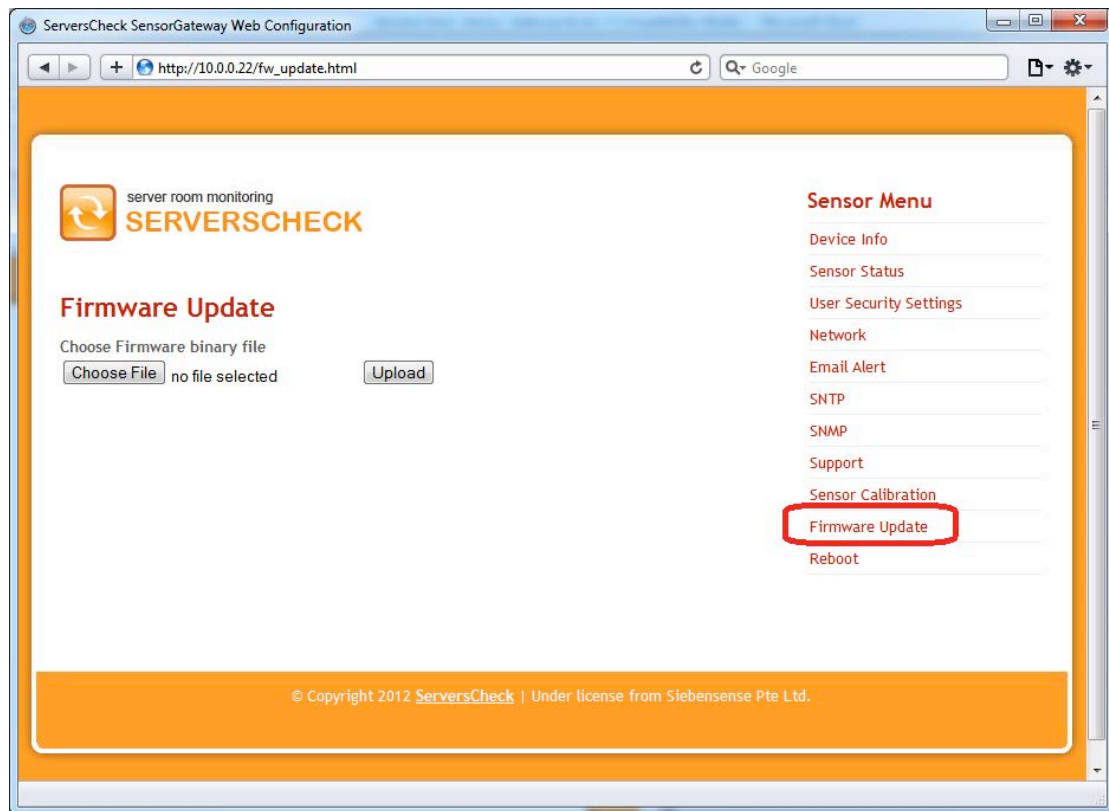


Go to <http://www.serverscheck.com/sensors/firmware.asp> to check for new firmware releases. Simply check on that page the latest firmware version available for your SensorGateway



Download the firmware to your PC and then go with your browser to the SensorGateway you wish to upgrade.

Click on the **Firmware Update** menu option and then click on the **Choose File** button to locate the downloaded firmware file. Only then click on the **Upload** button.



Your SensorGateway will now start loading the new firmware. Your SensorGateway will be available on <http://192.168.11.160> after the firmware update has been completed

Should the upgrade fail and should the SensorGateway be unresponsive then perform a factory reset as described in section 12 of this document.

17. SensorGateway's LED table



The following table details the different led indication combinations. Each combination allows you to visually get the nature of the state/issue

Yellow LED (Network/Online)	Green LED (Sensor)	Description
Flashing (fast, ~1/10 sec)	On	Updating firmware after reboot. Reboot time is about 5 seconds before SensorGateway is ready.
Flashing (slow, ~1 sec)	Any	Can't sync with NTP (time) server
On	Any	Synchronized with NTP (time) server
Any	Flashing	Can't communicate with external sensor probe
Any	On	Connected with external sensor probe

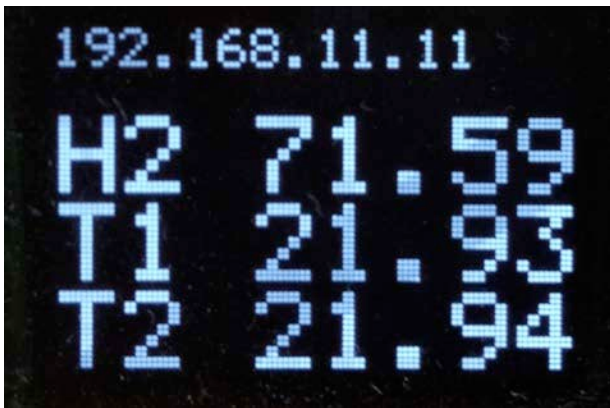
17.1. Normal Power on Reset, No New Firmware Uploaded

- a) Power ON state: Yellow & Green LED are ON for 2 seconds and start flashing
- b) Run state: Yellow & Green LED are both flashing
 - Green LED is ON if able to connect with external sensor probe
 - Yellow LED is ON if able to sync with NTP (time) server

17.2. Reboot, New Firmware Uploaded

- a) Power ON state: Yellow & Green LEDs are ON for 1 second and Yellow LED starts flashing
- b) Updating firmware state: takes around 20 seconds
 - Green LED stays ON
 - Yellow LED will flash very fast (about 1/10 seconds)
- c) Ready state: Yellow & Green LED are both flashing
 - Green LED is ON if able to connect with external sensor probe
 - Yellow LED is ON if able to sync with NTP (time) server

18. OLED Display Subscripts



✓	Internal Temp	Temp	temp1	21.99 °C
✓	Temperature	Temp	temp3	21.94 °C

The OLED display gives one a quick view of the values the SensorGateway is reading. The reference for the order of the subscript numbering is completely dependent on how the web page is showing it. In the photos displayed, the T1 value is referred to be temp1 while T2 is temp3.

19. Rack mounting the SensorGateway

The SensorGateway is a 0U device that can be easily and securely mounted in a rack using standard rack mount screws with Phillips head. Although one screw is sufficient to hold the whole equipment in place, a second one improves stability.

Typically the sensors are mounted at the rear of the rack where ample place is available so that it doesn't use any space reserved for server and other network rack mounted equipment.



20. The IO Sensor Probe – 16 Dry Contacts IN & 4 OUT

20.1. General Description

The IO sensor probe is a 16 zone expander for the Sensorgateway that adds up to 16 dry contacts for sensor alarm detection and indication. It has 4 output lines that can drive sirens and strobe lights. It is also capable of giving a 12 volt power supply and a maximum of 700 mA current capacity, enough to power several sensors and output devices . **Only one IO Sensor Probe per SensorGateway is supported**



20.2. Specifications

SENSOR TYPE:	HARDWIRED, OPEN / CLOSED
OPERATING POWER SUPPLY:	power supply comes from the Sensorgateway
AUXILLARY SUPPLY:	maximum current capacity of 700mA at 12 VDC
NUMBER OF INPUTS:	16
NUMBER OF OUTPUTS:	4
INDICATOR RANGE:	OK / TRIG
POLLING RATE:	can be set from 1 to 5 seconds
COMMUNICATION CABLE:	RJ45 TO RJ45 connector to the Sensorgateway

20.3. Applications

- SNMP interface sensor trigger and status
- SNMP traps sent when a change of state occurred
- SNMP polling for zone/sensor status
- SNMP set capability for OUTPUT purposes
- 12 VDC power source for sensors

20.4. Terminal Description



TERMINAL BLOCKS

DI1 to DI16	: 16 digital inputs
DO1 to DO4	: 4 digital outputs
+12V	: 12 VDC supply
GND	: supply ground

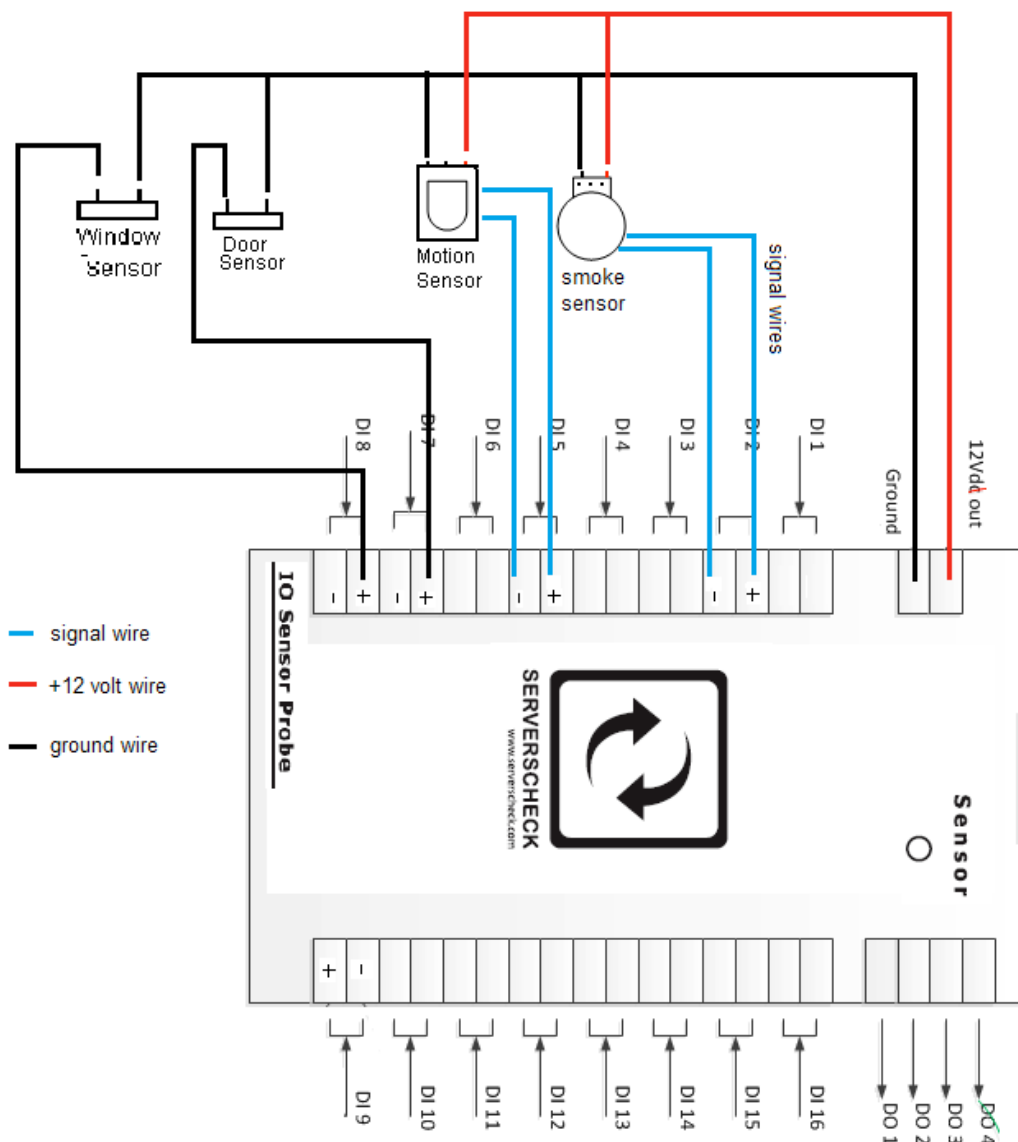
20.5. Mounting instructions

The IO sensor probe is a device that can be easily and securely mounted in a rack using standard rack mount screws with Phillips head. Although one screw is sufficient to hold the whole equipment in place, a second one improves stability.

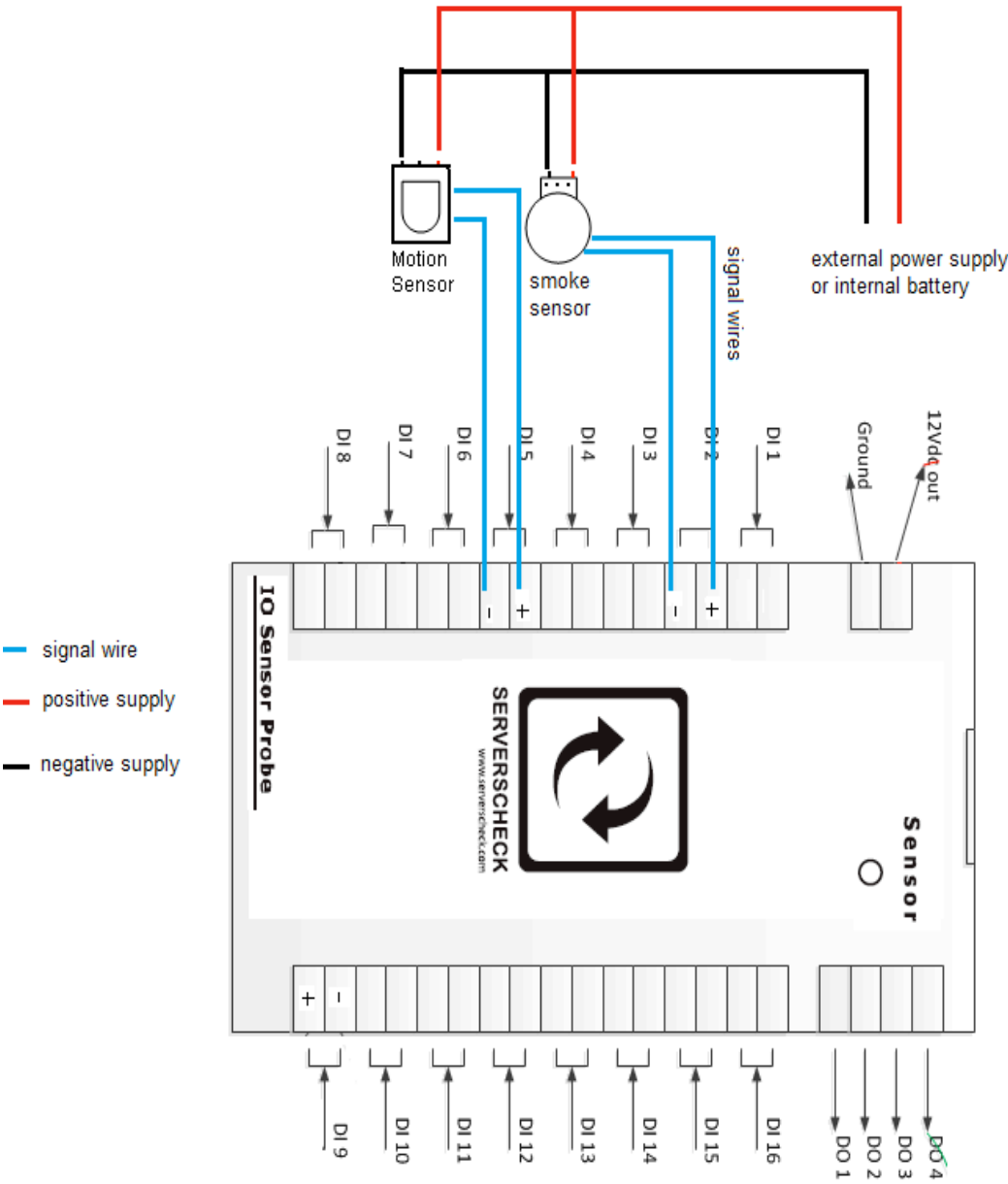
Typically the sensors are mounted at the rear of the rack where ample place is available so that it doesn't use any space reserved for server and other network rack mounted equipment.

20.6. Basic Wiring Diagram

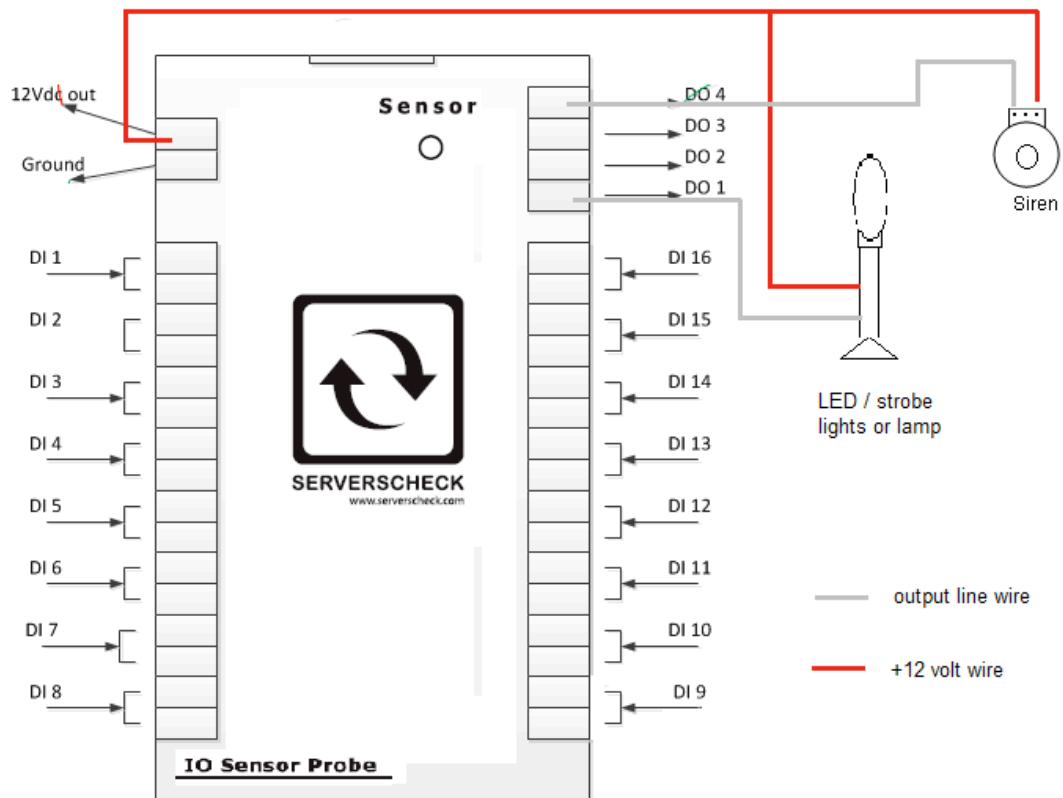
INPUTS: if sensors are getting their power supply from the IO sensor probe



INPUTS: if sensors are getting their power supply from an external source or internal battery



OUTPUTS: to drive a siren, lamp/strobe or any output device



20.7. SensorGateway IO Sensor Probe Interface

Output Status

Status	Output 1	Output 2	Output 3	Output 4	Del
	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High	<input type="checkbox"/> High	<input type="checkbox"/> High	

Input Status

Status	DI	Name	Value	Time(ms)	Normal State	Repeat Alarm	Email	SNMP Trap	Del
	1	UndefinIO 17	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2	UndefinIO 18	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3	UndefinIO 19	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4	UndefinIO 20	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5	UndefinIO 21	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	6	UndefinIO 22	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	7	UndefinIO 23	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	8	UndefinIO 24	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	9	UndefinIO 25	Trig	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	10	UndefinIO 26	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	11	UndefinIO 27	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	12	UndefinIO 28	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	13	UndefinIO 29	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	14	UndefinIO 30	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	15	UndefinIO 31	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	16	UndefinIO 32	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="button" value="Update"/> <input type="button" value="Refresh"/>									

OUTPUT1 TO OUTPUT4

-check box is used to activate and set an OUTPUT drive to an output device (siren or strobe /lamp)

NAME

-is used to assign a name to a zone or sensor (ie .. motion1, smoke1, door1)

VALUE

-shows the status of a zone . OK = normal condition, Trig = a zone/sensor has been triggered

Time (milliseconds)

-a time period that can be set which serves as a “wait period” before the IO sensor probe considers a change of state of a zone/sensor as an alert or a trigger

Normal State

-this will set the “logic” of the Input on how to define a trigger /change of state coming from the sensors

-it can be set as “open” for normally open (NO) logic or “closed” for normally closed (NC) logic.

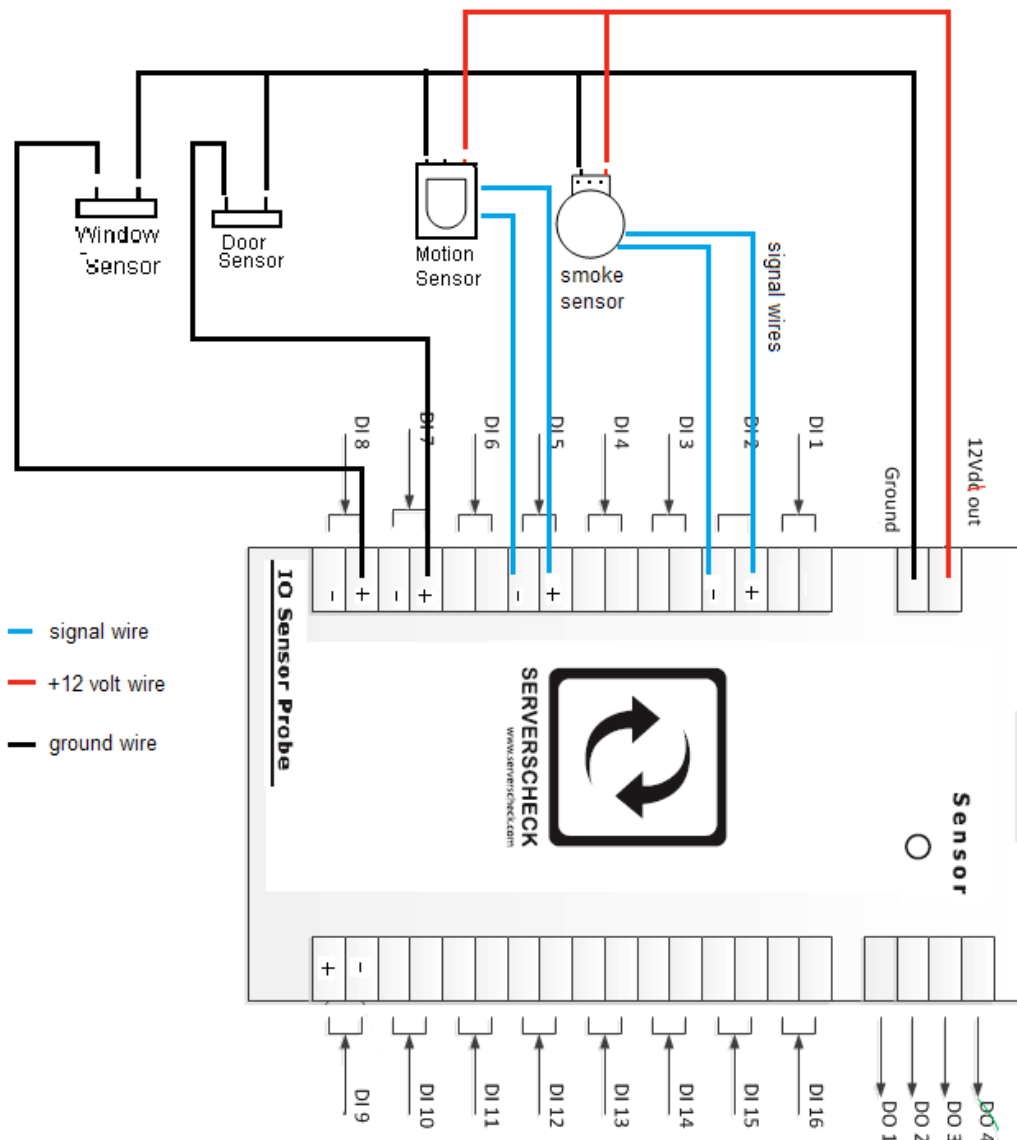
ALWAYS CLICK “UPDATE” AFTER EVERY CHANGE IN VALUES/PARAMETERS for changes to take effect

20.8. Wiring configuration and settings (anti tampering)

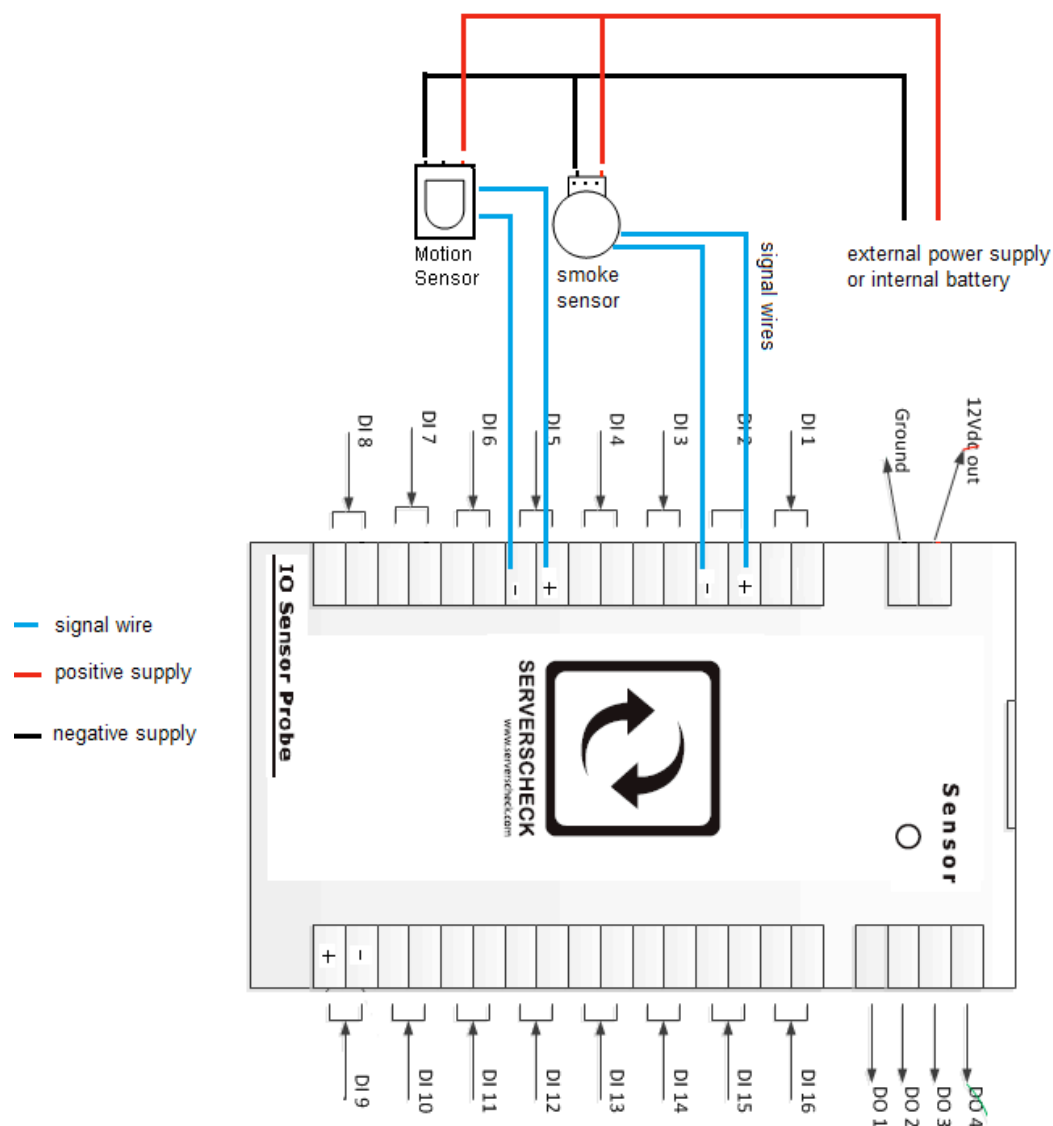
The IO sensor probe does not have the ability to give out specifically a “tamper” alert. But it can be wired and set to give out a “normal” alert if ever a power supply wire or a signal wire was cut off in which case the monitoring team must still attend to.

Basic wiring diagram for Inputs still applies

INPUTS: if sensors are getting their power supply from the IO sensor probe

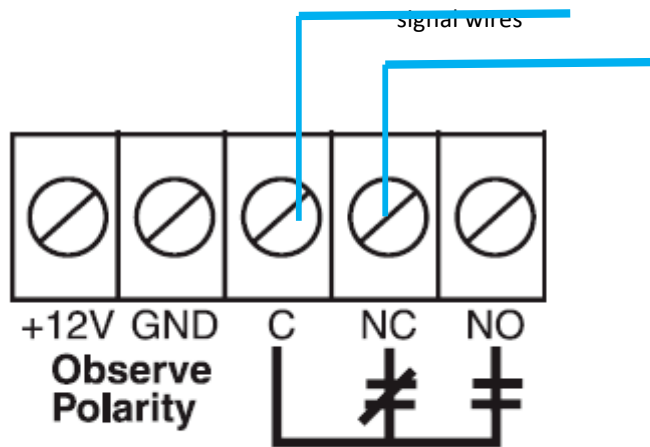


INPUTS: if sensors are getting their power supply from an external source or internal battery



A typical sensor (motion, smoke, CO etc) has dry contacts as its signal output to a control panel (usually located inside of the sensor, at the back or already exposed via 3 wires and a terminal connector)

Connect the signal wires from the IO sensor probe (can be interchanged) to NC and C terminals of the sensor



DRY CONTACT TERMINALS

NO : normally open (open circuit if not triggered / short circuit when triggered)

NC : normally closed (short circuit if not triggered / open circuit when triggered)

C : common (common terminal)

Set the all Normal State to **"Closed"** (setting the trigger logic to normally closed)

Output Status

Status	Output 1	Output 2	Output 3	Output 4	Del
	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High	<input type="checkbox"/> High	<input type="checkbox"/> High	

Input Status

Status	DI	Name	Value	Time(ms)	Normal State	Repeat Alarm	Email	SNMP Trap	Del
	1	UndefinedIO 17	OK	500	Closed ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	2	UndefinedIO 18	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	3	UndefinedIO 19	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	4	UndefinedIO 20	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	5	UndefinedIO 21	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	6	UndefinedIO 22	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	7	UndefinedIO 23	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	8	UndefinedIO 24	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	9	UndefinedIO 25	Trig	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	10	UndefinedIO 26	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	11	UndefinedIO 27	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	12	UndefinedIO 28	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	13	UndefinedIO 29	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	14	UndefinedIO 30	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	15	UndefinedIO 31	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	16	UndefinedIO 32	OK	500	Open ▾	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

The IO sensor probe will be triggered if it detects an “open circuit” from any of its Digital Inputs (DI1 to DI16) because its Normal State is configured as Closed (short circuit). The sensors are wired in which it will output an “open circuit” if any of them were triggered. Thus, triggering the IO sensor probe a normal alert on that particular zone/sensor

If any one of the signal wire is cut (or both), the dry contact terminal will still give out an “open circuit” state. Thus, triggering the IO sensor probe a normal alert on that particular zone/sensor where signal wire was cut

If any one of the power supply wire is cut (or both), the dry contact terminal will go to an “open circuit” state . Thus, triggering the IO sensor probe a normal alert on that particular zone/sensor where power was removed

It may not be a “tamper” alert but its is still an alert that will signal a monitoring system that an anomaly has occurred and needs to be checked

IMPORTANT NOTICE WHEN MONITORING VIA SNMP

When monitoring the IO Sensor via SNMP then one should use the SNMP traps feature instead of using the SNMP Get requests. Through SNMP GET one only receives the status of the contact at the time when the request is made. With the SNMP Traps it will trigger an alert as soon as the condition is met

20.9. Output Triggering

The output triggering can toggle between automatic / assigned or manual/direct using the corresponding buttons on the sensor page. This requires firmware 3.22 or higher.

Enable Direct Output (Relay and Output)

Enable Direct Output

Input Status

Status	DI	Name	Value	Time(ms)	Normal State	Repeat Alarm	Email	SMS	SNMP Trap	Output	Clear Output
✓	1	UndefinedIO 1	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	2	UndefinedIO 2	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	3	UndefinedIO 3	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	4	UndefinedIO 4	Trig	500	Close	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR

Update Reset Enable Sensor to Output

Automatic/Assigned Output on Sensor Thresholds

The output triggering (digital and relay) can be set using the assigned threshold on a particular sensor. Simply assign an output from the drop down menu. The output can be cleared but if the repeat alarm option is selected, it will activate again given that the threshold is still reached. Several sensors can share and be assigned to a particular output.

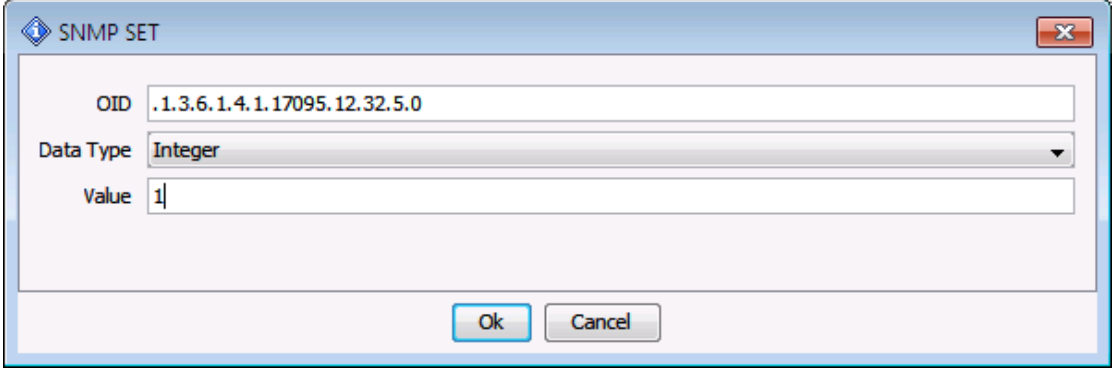
Sensor Status

State	Id	Type	Name	Current Value	Warning Range	Down Range	Repeat Alarm	Email	SMS	SNMP Trap	Output	Clear Output
✓	Internal Temp	Temp	Int. Temp	22.69 °C	< 18.1 or > 37.1	< 15.1 or > 41.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Water Detect	Water Detect	Water Detect	DRY	-	SET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Air Flow	Air Flow	Airflow	0.00 m/s	< 1.0	< 0.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Temperature	Temp	Ext. Temp	21.56 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Humidity	Humidity	Humidity	65.10 %RH	< 45.1 or > 65.1	< 40.1 or > 70.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Temperature	Temp	Ext. Temp	22.50 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR

Sensor !
User Se
Network
Email A
SMS Ale
SNTP
SNMP
Support
Sensor !
Firmwai
Reboot

SNMP Set - Manual / Direct Output Triggering

The output triggering (digital and relay) can also be done by SNMP (SET) and through the Webpage



The image shows a dialog box titled "SNMP SET". It contains three input fields: "OID" with the value ".1.3.6.1.4.1.17095.12.32.5.0", "Data Type" set to "Integer" (shown in a dropdown menu), and "Value" set to "1". At the bottom of the dialog are "Ok" and "Cancel" buttons.

Relay Status

Status	Output 1	Output 2
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High

Output Status

Status	Output 1	Output 2	Output 3	Output 4
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High

Enable Direct Output (Relay and Output)

21. Security Sensors

21.1. General Description

ServersCheck's security solution allows detection of doors, motion, and smoke. Underneath all of these security probes is a simple logic that's adjustable to be close or open. Upon setting a given value, the sensor will instantly be triggered once the opposite is detected which will end up sending you an alert on the event that currently occurred. Being adjustable however, means there's room for changes whenever the situation requires you. This allows for maximum flexibility of what defines an alert.

In this figure, the actual probe that's attached is the door sensor with the logic defaulting to *CLOSE*. Upon opening, we see how it is triggered and thus will eventually send alerts depending on the alerting options chosen.

It is important to note that all security probes have the same web interface so it is advisable to attach one at a time and immediately rename it according to your naming conventions.



On the following photos, it is good to keep in mind that the connection from the sensor to the SensorGateway remains the same. For more information, refer to section 2.

21.2. View of Door Sensor



21.3. View of Motion Sensor



21.4. View of Smoke Sensor



22. Sound Sensor

With the data center demanding a very conducive environment for the services it provides, we know that the people making all those possible needs to be safeguarded as well from any anomaly-producing situations.

This sensor probe measures sound levels in decibels (dB) which allows you to be notified from a number of noise-producing deviations within your data center. Maximum level allowed is up to 100 dB.

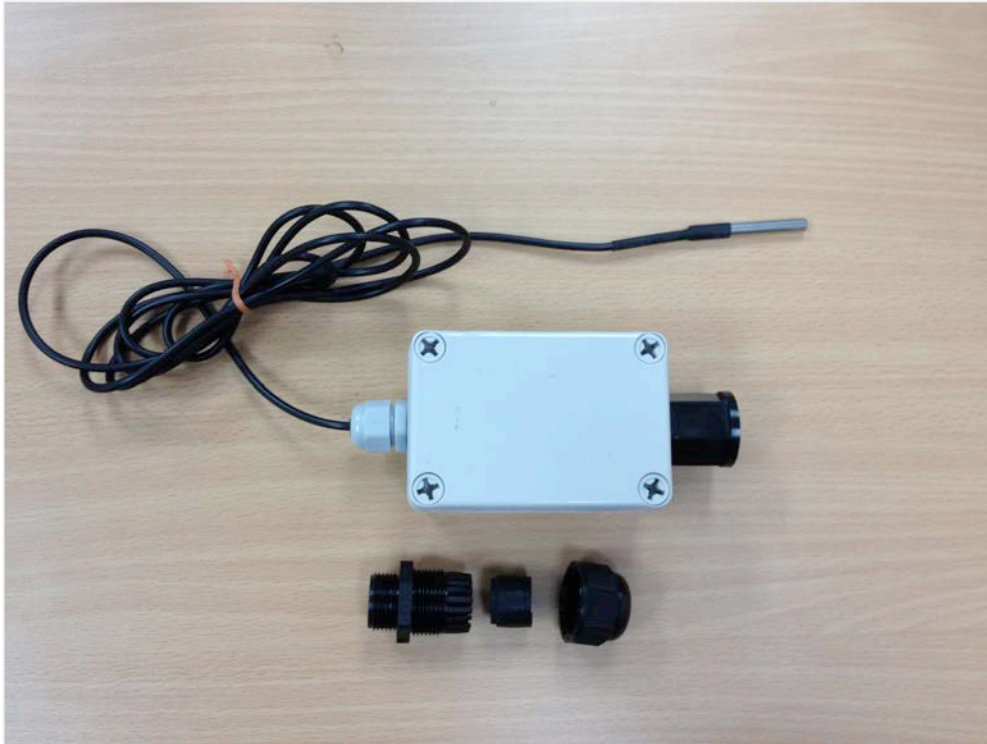


22.1. View of Sound Sensor

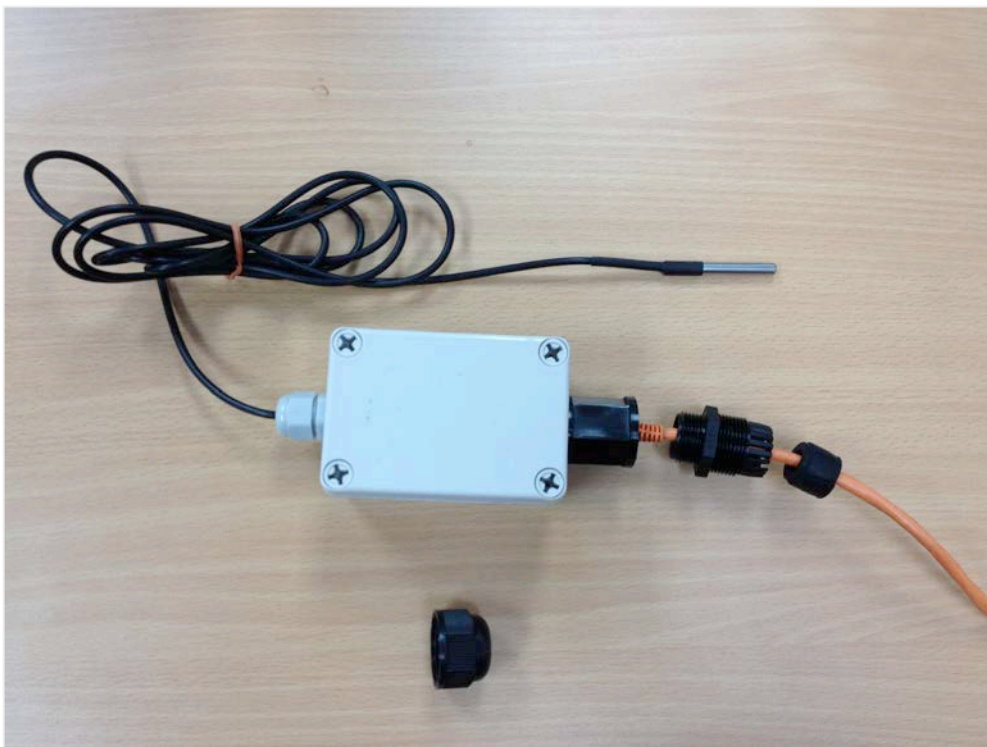


23. Stainless Steel Temperature Sensor Assembly

Out from the box, for the Ethernet connector, you should have the 3 parts that are yet to be assembled: the over-nut, rubber gasket, and contracting gland (from left to right).



To get started, insert the over-nut and rubber gasket in your LAN cable then plug it in on the protruding RJ 45 connector from the sensor probe.



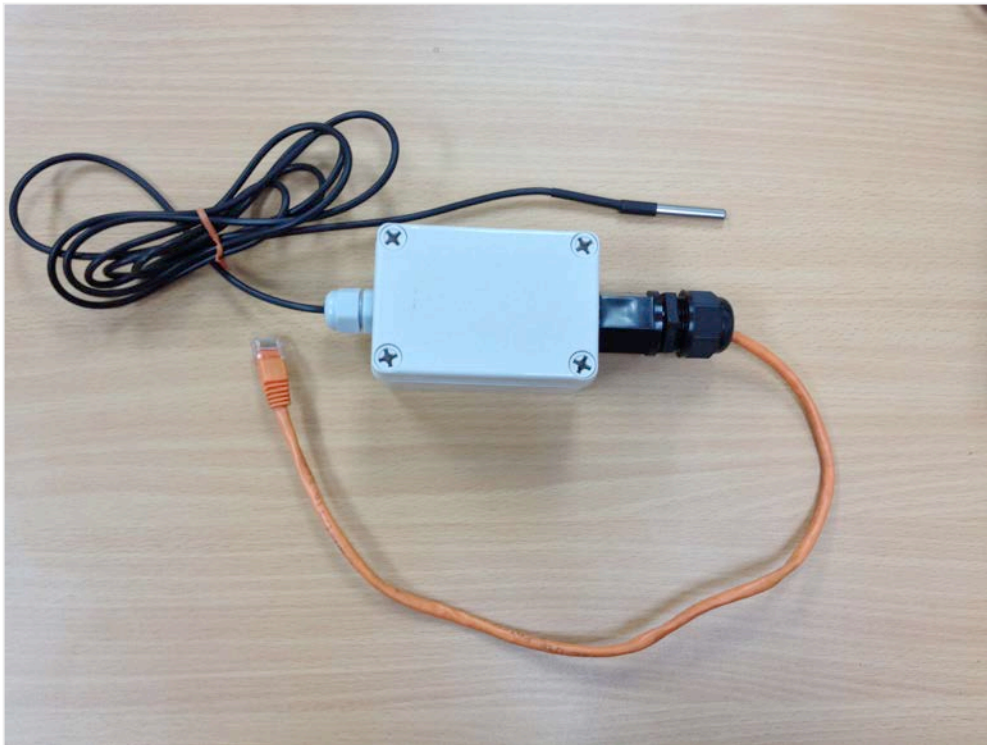
Once that's done, insert the rubber gasket all the way inside the over-nut.



After that, connect them both on the RJ 45 connector of the sensor.



Now that we have that, we just need to insert the contracting gland to seal the Ethernet passthrough. Your stainless steel temperature sensor should now look similar to the following image.



24. The Sensor Hub

24.1. General Description

The sensor hub is a port expander attachment / peripheral for the SensorGateway that allows it to accommodate up to 8 sensor probes. It has 4 input dry contacts for sensor alarm detection and indication, 4 output lines that can drive sirens and strobe lights, 2 relay outputs for contact control requirements. It is also capable of giving a 9 to 12 volt power supply and a maximum of 500 mA current capacity, enough to power several sensors and output devices



24.2. Specifications

EXPANSION PORTS :	up to 8 sensor probes
OPERATING POWER SUPPLY:	power supply comes from the SensorGateway
AUXILLARY SUPPLY:	maximum current capacity of 500mA at 9 to 12 VDC
NUMBER OF INPUTS:	4 (dry contacts)
NUMBER OF OUTPUTS:	4 (digital) and 2 relay outputs
POLLING RATE:	can be set from 1 to 5 seconds
COMMUNICATION CABLE:	2 RJ45 cable to the SensorGateway

24.3. Probe Restrictions

- must not be connected with IO sensor probe
- must not be connected with wireless probe
- must not be connected with QoS probe

24.4. Connecting the SensorHub to the SensorGateway

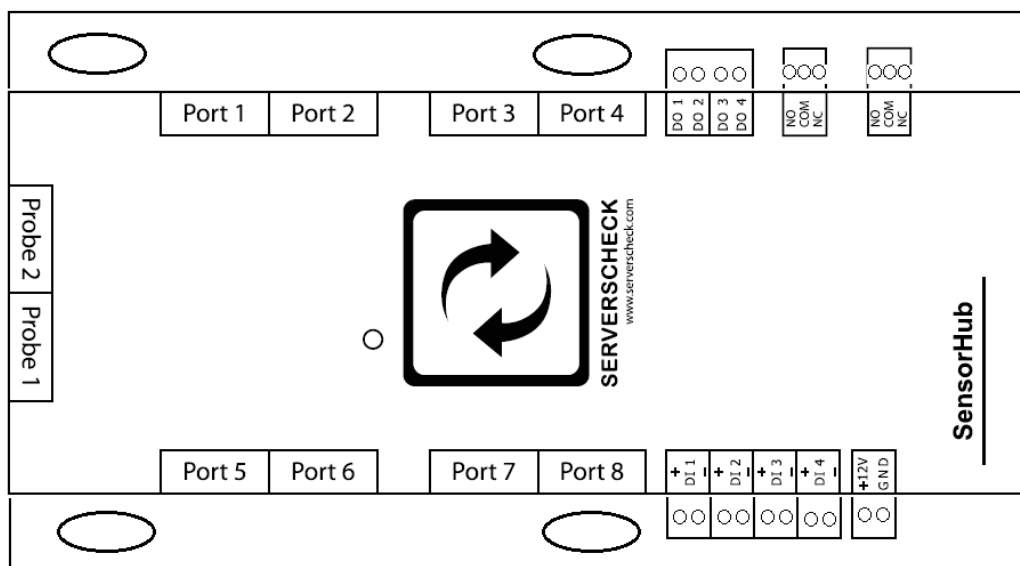


The sensor hub connects through regular RJ45 cables to the SensorGateway. The unit is shipped with 2 short RJ45 cables and a mask plate. You can use longer RJ45 cables if a longer distance is needed.

Plug the first RJ45 cable from on port 1 of the Sensor Hub and on port 1 of the SensorGateway
Then plug in the second RJ45 cable on port 2 of the Sensor Hub and on port 2 of the SensorGateway
If you use the short RJ45 cables shipped with the Sensor Hub, then slide the metal mask plate over the SensorHub and SensorGateway as shown in above picture and the picture below.



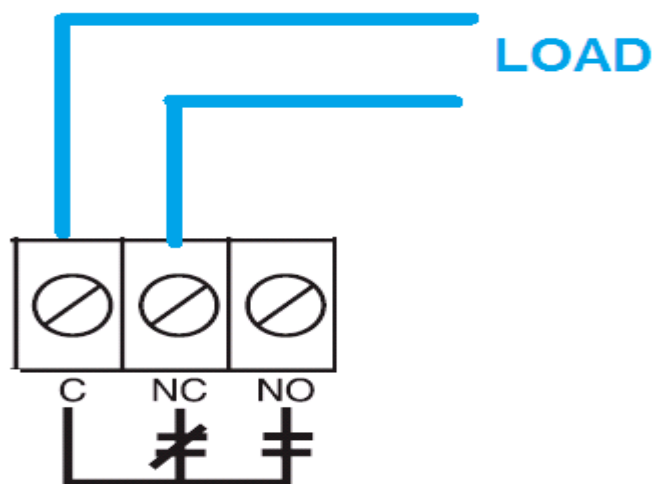
24.5. Terminal Connections



PROBE 1 AND PROBE 2:	connect to SensorGateway using two RJ 45 cables
PORT 1 TO PORT 8 :	connect sensor probes
DI 1 to DI 4:	connect to 4 dry contact inputs
DO 1 to DO 4:	connect to 4 digital outputs
NO, COM and NC:	relay outputs

24.6. Basic wiring

INPUTS (dry contact) : same wiring diagram as the IO sensor probe for inputs
OUTPUTS (digital) : same wiring diagram as the IO sensor probe for outputs
OUTPUTS (relay) : connection to a load will depend on the wiring convention



relay terminals

NO : normally open (always open contact/not connected)
NC : normally closed (always shorted contact/connected)
C : common (common terminal)

24.7. The SensorGateway Webpage

Expansion of Probes

State	Id	Type	Name	Current Value	Warning Range	Down Range	Repeat Alarm	Email	SMS	SNMP Trap	Output	Clear Output
	Internal Temp	Temp	Int Temp	22.44 °C	< 18.1 or > 37.1	< 15.1 or > 41.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RELAY 1	<button>CLEAR</button>
	Water Detect	Water Detect	Water Detect	DRY	-	SET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	<button>CLEAR</button>
	Air Flow	Air Flow	Airflow	0.00 m/s	< 1.01 or > 1.01	< 0.51 or > 0.51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	<button>CLEAR</button>
	Temperature	Temp	Ext Temp	21.44 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 2	<button>CLEAR</button>
	Humidity	Humidity	Humidity	65.12 %RH	< 45.1 or > 65.1	< 40.1 or > 70.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 2	<button>CLEAR</button>
	Temperature	Temp	Ext Temp	22.37 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 3	<button>CLEAR</button>
	Humidity	Humidity	Humidity	62.36 %RH	< 45.1 or > 65.1	< 40.1 or > 70.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 3	<button>CLEAR</button>
	Shock Sensor	Shock Sensor	Shock	1.01 G	< 0.71 or > 1.21	< 0.51 or > 1.51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	<button>CLEAR</button>
	Power fail meter	Power fail meter	PowerFail	OK	-	SET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	<button>CLEAR</button>
<div><div>Update</div><div>Reset</div></div> <div>Enable Sensor to Output</div>												

[Network](#)
[Email Alert](#)
[SMS Alert](#)
[SNTP](#)
[SNMP](#)
[Support](#)
[Sensor Config](#)
[Firmware](#)
[Reboot](#)

INPUTS AND OUTPUTS

Relay Status

Status	Output 1	Output 2
	<input type="checkbox"/> High	<input checked="" type="checkbox"/> High

Output Status

Status	Output 1	Output 2	Output 3	Output 4
	<input type="checkbox"/> High	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High	<input type="checkbox"/> High

Enable Direct Output (Relay and Output)

Input Status

Status	DI	Name	Value	Time(ms)	Normal State	Repeat Alarm	Email	SMS	SNMP Trap	Output	Clear Output
	1	UndefinedIO 1	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 1	<input type="button" value="CLEAR"/>
	2	UndefinedIO 2	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 1	<input type="button" value="CLEAR"/>
	3	UndefinedIO 3	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	OUTPUT 4	<input type="button" value="CLEAR"/>
	4	UndefinedIO 4	Trig	500	Close	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	RELAY 2	<input type="button" value="CLEAR"/>
<input type="button" value="Update"/> <input type="button" value="Reset"/> <input type="button" value="Enable Sensor to Output"/>											

24.8. Output Triggering

The output triggering can toggle between automatic / assigned or manual/direct using the corresponding buttons on the sensor page. This requires firmware 3.22 or higher.

Enable Direct Output (Relay and Output)

Enable Direct Output

Input Status

Status	DI	Name	Value	Time(ms)	Normal State	Repeat Alarm	Email	SMS	SNMP Trap	Output	Clear Output
✓	1	Undefined I 1	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	2	Undefined I 2	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	3	Undefined I 3	OK	500	Open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	4	Undefined I 4	Trig	500	Close	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR

Update 1 Reset

Enable Sensor to Output

Automatic/Assigned Output on Sensor Thresholds

The output triggering (digital and relay) can be set using the assigned threshold on a particular sensor. Simply assign an output from the drop down menu. The output can be cleared but if the repeat alarm option is selected, it will activate again given that the threshold is still reached. Several sensors can share and be assigned to a particular output.

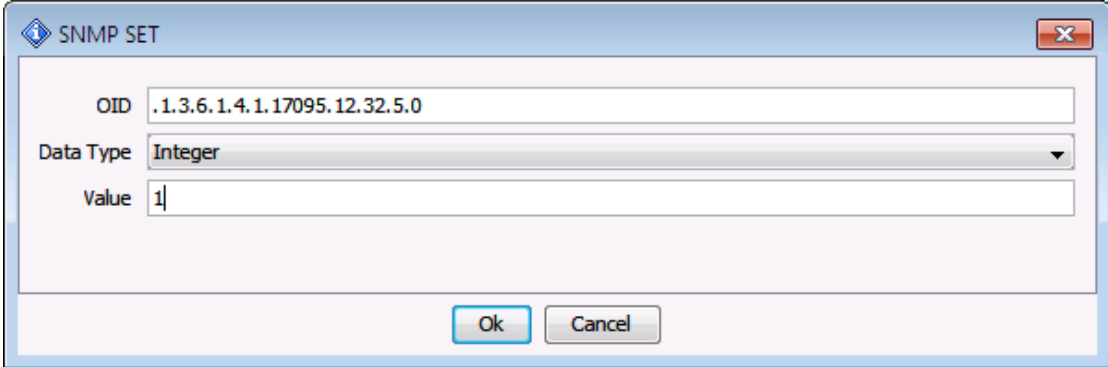
Sensor Status

State	Id	Type	Name	Current Value	Warning Range	Down Range	Repeat Alarm	Email	SMS	SNMP Trap	Output	Clear Output
✓	Internal Temp	Temp	Int. Temp	22.69 °C	< 18.1 or > 37.1	< 15.1 or > 41.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Water Detect	Water Detect	Water Detect	DRY	-	SET	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Air Flow	Air Flow	Airflow	0.00 m/s	< 1.0	< 0.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Temperature	Temp	Ext. Temp	21.56 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Humidity	Humidity	Humidity	65.10 %RH	< 45.1 or > 65.1	< 40.1 or > 70.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR
✓	Temperature	Temp	Ext. Temp	22.50 °C	< 18.1 or > 25.1	< 15.1 or > 29.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	DISABLE	CLEAR

Sensor !
User Se
Network
Email A
SMS Ale
SNTP
SNMP
Support
Sensor !
Firmwai
Reboot

SNMP Set - Manual / Direct Output Triggering

The output triggering (digital and relay) can also be done by SNMP (SET) and through the Webpage



The image shows a dialog box titled "SNMP SET". It contains three input fields: "OID" with the value ".1.3.6.1.4.1.17095.12.32.5.0", "Data Type" set to "Integer" (shown in a dropdown menu), and "Value" set to "1". At the bottom of the dialog are "Ok" and "Cancel" buttons.

Relay Status

Status	Output 1	Output 2
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High

Output Status

Status	Output 1	Output 2	Output 3	Output 4
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High	<input checked="" type="checkbox"/> High	<input type="checkbox"/> High

Enable Direct Output (Relay and Output)

25. Control Functions

With the IO probe and SensorHub, control functions can now be automated which could be the resulting triggers from your monitored sensors. While this is only true for the IO probe and SensorHub as of the moment, said function will also be made available on our Cloud Platform service.

For a concrete example, if the monitored temperature hits a specified threshold, say 40 degrees Celsius, your backup PACU/AC unit can now be automatically turned on to compensate for the reported rising temperature. More than that, if the met condition is not anymore true, the SensorGateway will also automatically disable the output connectivity.

Before we discuss the actual setup, we have to emphasize the difference first between the IO probe and SensorHub – that is the SensorHub has relay outputs while the IO probe does not. The maximum capacity for the SensorHub's relay is 400VAC/150VDC and 200VA/192W. If an output device is to be used that exceeds those specifications, an external relay, i.e. solid state relay, will have to be used.

25.1. Configuration

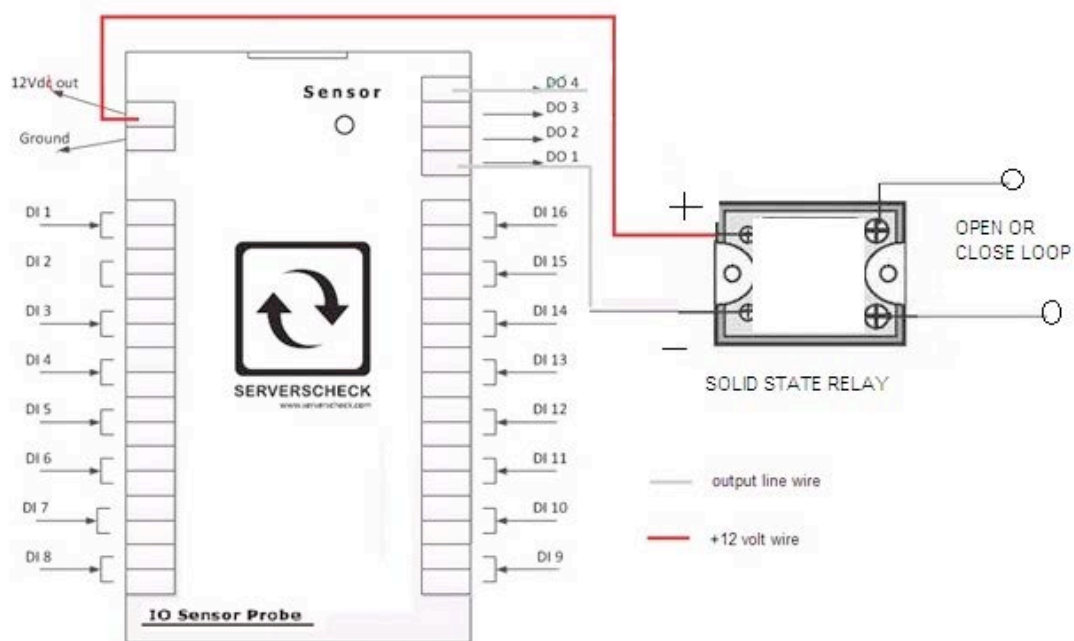
- 1) To start with, enable the sensor-to-output function first. If you're currently using direct output, you'll have to choose between the two since ServersCheck only caters one of those functions at a time. To do so, on the "Sensor Status" page, click "Enable Sensor to Output" below the "Sensor Status" table. For more information on the direct output and output triggering, refer to 23.8.

Upon enabling it, the button should now be greyed out. If it is, you should now be able to select the outputs from the "Output" column of the "Sensor Status" table.

- 2) After which, specify your administrative threshold, select the output of choice from the "Output" column of the "Sensor Status" table and hit "Update."

25.2. Wiring

Now that we have those configured, for the output wiring, kindly refer to 20.6. If an external relay will be used, refer to the following diagram:



Having done all of those, with the following configuration, the attached output will now be triggered each time a threshold is met.

<input checked="" type="checkbox"/>	Temperature	Temp	Ext. Temp3	25.50 °C	< 18.0 or > 40.0	< 15.0 or > 45.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	RELAY 1	CLEAR
-------------------------------------	-------------	------	------------	----------	------------------------	------------------------	--------------------------	-------------------------------------	-------------------------------------	-------------------------------------	---------	-------

26. Cloud Platform

With ServersCheck's cloud platform, your SensorGateways will now be more manageable even without the use of other integration software. This feature will only be applicable to SensorGateways running at least on firmware Release 4.0.

26.1. Registration

On the cloud tab, click the highlighted button below to go to ServersCheck's cloud platform website.

Cloud Settings

Enable Cloud Data Upload : ☐

Device ID :

PIN :

You can find your Device ID and PIN code in the Cloud portal.
Click [here](#) to access / create your account.

- [Wireless Information](#)
- [Alert Log](#)
- [Cloud](#)
- [User Security Settings](#)
- [Network](#)
- [Email Alert](#)
- [SMS Alert](#)
- [SNTP](#)
- [SNMP](#)

You will be taken to the web page: <https://my.infrastructuremonitoring.com/>

Create a new account and make sure to verify your account by responding to the confirmation email message.

LOGIN

Email:

Password:

☐ Remember me

[Forgot password?](#)
[Create new account](#)

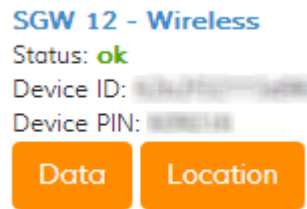
>

GO

Upon doing so, you can now proceed to register your SensorGateway to your cloud account.

26.2. SensorGateway Identification

From your cloud dashboard, click “Add New Device” to name your SensorGateway and save it. After that, you will see the credentials associated with that as seen on the screenshot.



On the SensorGateway that you want to associate with the newly added device, go to the Cloud section and enter the generated credentials. These will of course be unique on each of your SensorGateways.

26.3. Sensor Dashboard

Now that that’s done, after 1-2 minutes maximum, you should now see your sensors by clicking “Data” on the newly added device.

SGW 12 - Wireless
Device ID:
Device Created - 19/12/2013 09:22:47
Last Update - 23/12/2013 08:37:29
Share sensor data: [get link](#)

24.37	24.75	23.81	24.09	56.95	26.51
EXT TEMP WT-0013	EXT TEMP EXT. TEMP	EXT TEMP WTEMP3	EXT TEMP WTEMP1	HUMIDITY WTH-0005	INT TEMP INT. TEMP

In this section, you can optionally hand out read-only access to this specific SensorGateway by clicking “get link” on “Share sensor data.”

Read Only Access to Sensor Data



This feature allows you to share sensor data with other users without giving them the access to edit or modify your data.

Access is granted on a per device basis.

 [Generate read only link](#)

After clicking the generate button, you'll be seeing the following:

Read Only Access to Sensor Data

By sharing following link you can give other users access to the values of the device.

https://my.infrastructuremonitoring.com/sensordata_readonly.php?ID=GeKjXm

Deactivate read only link

Additionally, after handing them out, you have the option to deactivate the link by simply clicking the associated button.

26.4. Alerts

The ServersCheck Cloud Platform provides 2 kinds of alerts: threshold and if-then (IFT) alerts. While the 2 methods will be discussed in greater detail on the following sub-sections, the main difference between the two would be their respective scopes.

For the threshold alerts, configuring an alert would be automatically applied to all devices registered on the Cloud Platform. For IFT alerts, one could filter the alerts so as to apply it only on the desired conditional scenario(s). Despite their difference, both functionalities remain to be interoperable with each other.

26.4.1. Threshold Alerts

Alerts defined here will be completely independent from what was configured on the associated SensorGateway since you'll be defining new thresholds and email address for the alert to be sent.

On the "Alerts" tab, click "Add New Alert" to get started.

Add new alert

Sensor Type

Temp

CriticalLow	WarningLow	WarningHigh	CriticalHigh
10	15	28	30

Email

myemail@address.com


Save

After which, you should now see it listed on the present tab. And as listed, you can easily edit your alert's settings by clicking "Edit."

dew point	8	10	17	18		
dry contact	1	15	1	1		
flooding	1	0	2	3		
flow rate	0	1	20	30		
fuel level	10	20	70	80		
humidity	40	45	60	62		
lost						
power fail	1	1	1	1		
security	1	2	3	4		
shock	0	0	0	1		
sound pressure	10	20	40	50		
temp	10	15	28	30		
volt meter	0	5	40	50		
watt meter	0	5	40	50		

26.4.2. If-Then (IFT) Alerts


To begin with, simply proceed to "IFT Alerts Settings" then click "Add New IFT Alert." Upon doing so, you should see the first section for your IFT alerts appearing.




[Home](#)
[Map](#)
[Devices](#)
[Sensors](#)
[Alerts](#)

[Alerts history](#)
[Threshold Alerts Settings](#)
[IFT Alerts Settings](#)


If-Then Alerts setting







If:
[+ Add condition](#)

Then:
[+ Add action](#)



 You can arrange alerts by drag'n'drop

 Alerts not containing a sensor type condition and at least one action will be ignored.

For your conditions, hit "Add condition" and choose whichever parameters you desire. For this demo, we'll simply select a temperature threshold of 35 degrees for our condition.

If-Then Alerts setting

NOTE: As indicated on the blue note on the lower left page, your conditions should at least contain a sensor type.

For our action, by hitting “Add action,” you can choose to send an email alert, set the device status, or both.

Now after the configured demo, if any of the configured SensorGateway’s temperature sensor goes above 35 degrees, an alert will be sent via email and that device’s status will be set to a “warning” state.

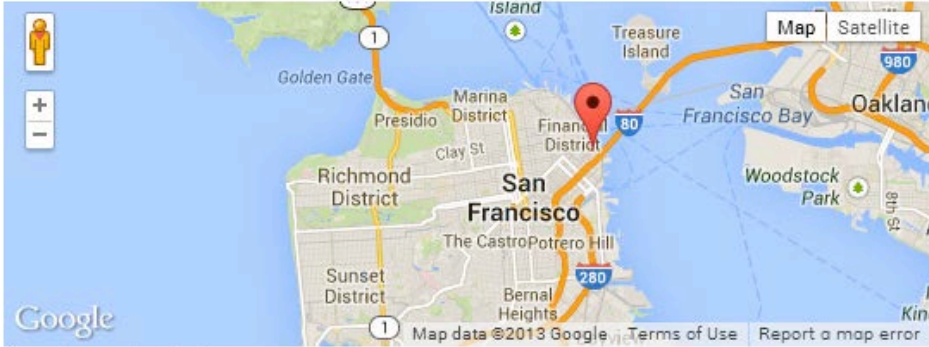
If-Then Alerts setting

26.5. SensorGateway Location

For a more organized view of your over-all monitoring infrastructure, you could setup the location of each of your SensorGateways.

From the “Devices” tab, click “Location” to set it up.

Edit Device Location



Drag the marker to improve your search.

Lat: Long:

After updating it, you could now navigate to the “Map” tab and view the configured devices.



27. Configuring the ServersCheck Monitoring Software for centralized sensor monitoring

The ServersCheck Monitoring Software allows you to centrally monitor sensors located virtually anywhere. Central Management simplifies the supervision and alerting configuration. With the ServersCheck Monitoring Software one can add the SMS alerting ensure to receive alerts even when the network is down.

All communication between central monitoring software and sensors is over TCP/IP using the UDP protocol on port 161.

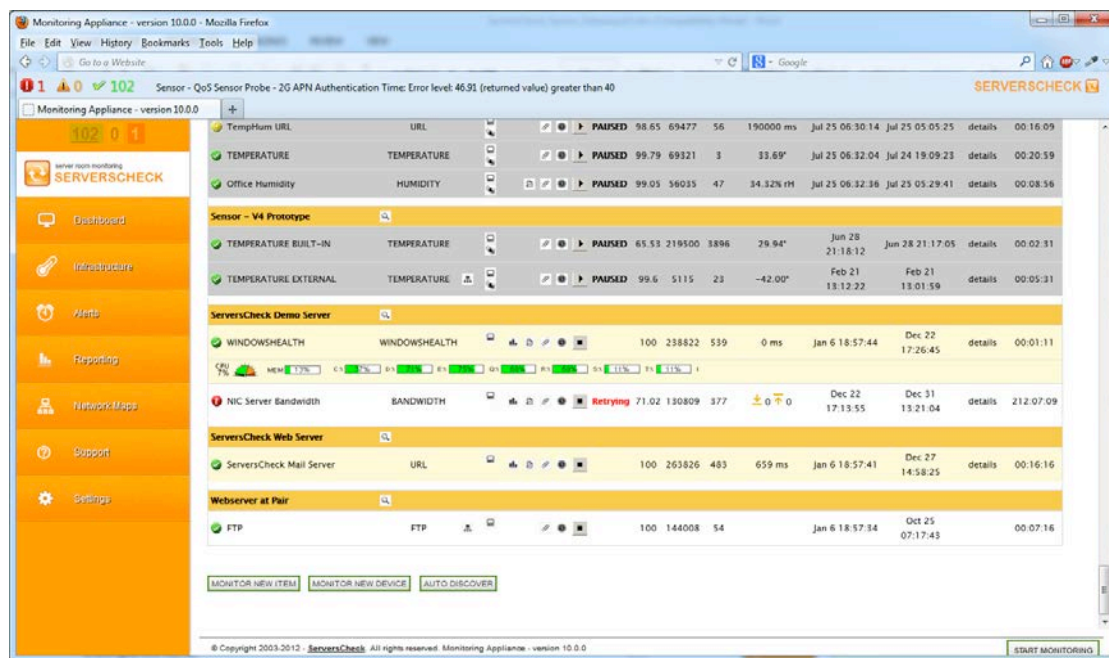
We are now going to configure a temperature check in the ServersCheck Monitoring Software.

The ServersCheck Monitoring Software can be downloaded from following URL :

<http://www.serverscheck.com/download.asp>

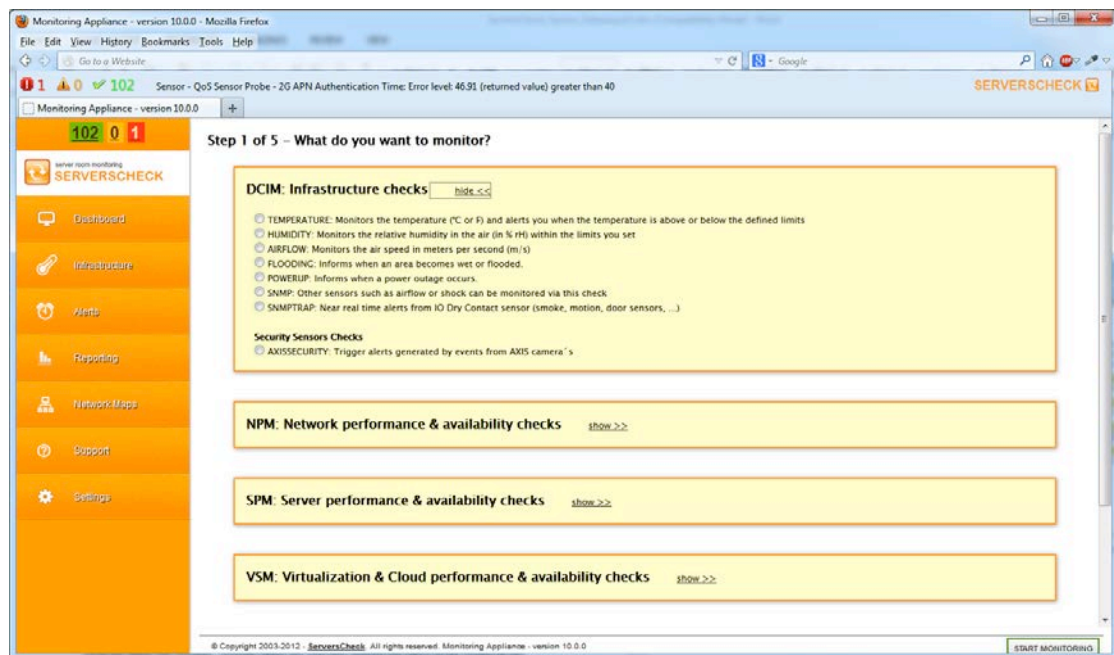
The screenshots below are taken from a ServersCheck Monitoring Appliance.

Point your browser to the web interface of the ServersCheck Monitoring Software. If installed locally, then this is **http://localhost:1272**.



Click on the “**MONITOR NEW ITEM**” button at the bottom of the middle frame.

A new screen like the following will open. Click on the **DCIM Infrastructure checks** group



Select your sensor from the above list and click on the **Next Step** button

Assign a name to the monitor

Monitor label name:

Device that is monitored:

Device name:

IP Address:

Application Group to which the monitor belongs to:

>> STEP 3

In the above screen make sure to have a clear name for the sensor. For a rack indicate for example that it is the Intake temperature. For Device add here the rack – so select **Add New Device** and as a name enter for example **Sensors – Rack 1** and provide the IP address of the Sensorgateway.

Click on the **>> STEP 3** button

Set the frequency interval of checking the environmental condition.

Assign a frequency to the monitor (TEMPERATURE)
How often do you want to perform this monitor? every minutes

When the monitor failed how often do you want to retry it before considering it as down? retries

>> STEP 4

The temperature check connects to a temperature sensor and retrieves the real-time value captured by the sensor. In a server room temperature should be between 18–27°C or 64–80°F

This check requires a ServersCheck temperature sensor probe. Click [here](#) for more info.

Sensor location ⓘ

SensorGateway Type ⓘ

Set status to DOWN when

Select a location position for the sensor

Ambient Room Temperature Monitoring

Under Raised Floor

Intake Rack Temperature (Bottom Front Rack)

Top Front Rack Temperature

Top Back Rack Temperature

>> STEP 5

Above screen with **Sensor Location** will be shown when you have selected a temperature sensor. From the drop down menu select the location of the room – this will be used when creating the temperature heat maps.

The temperature check connects to a temperature sensor and retrieves the real-time value captured by the sensor. In a server room temperature should be between 18–27°C or 64–80°F

This check requires a ServersCheck temperature sensor probe. Click [here](#) for more info.

Sensor location Ambient Room Temperature Monitoring i

SensorGateway Type Select a SensorGateway Type i

Set status to DOWN when SensorGateway 2 Probes SensorGateway 1 Probe Serial USB Tibbo

>> STEP 5 TEST SETTINGS

Select now your SensorGateway type. Older versions of the SensorGateway did have only one port. Before the 1 port SensorGateways we had serial, Tibbo or USB based sensor probes. Those older versions can still be monitored through a paid license of the ServersCheck Monitoring Software but they are no longer supported.

If you purchased a recent SensorGateway from us then select **SensorGateway 2 Probes**

The temperature check connects to a temperature sensor and retrieves the real-time value captured by the sensor. In a server room temperature should be between 18–27°C or 64–80°F

This check requires a ServersCheck temperature sensor probe. Click [here](#) for more info.

Sensor location Ambient Room Temperature Monitoring i

SensorGateway Type SensorGateway 2 Probes i

IP of Device Server 10.0.0.30

Community string public

Sensor Probe ID DETECT PROBES

Set status to DOWN when the temperature is greater than

>> STEP 5 TEST SETTINGS BACK

A set of new options are shown. The IP address is already automatically added based on the device parameters configuration a few screens earlier

Click on the **DETECT PROBES** button. It will now scan the SensorGateway and return all values it can find.

Sensor Probe ID

Set status to DOWN when

>> STEP 5

TEST SETTINGS

1: jprashant - 24.19

1: jprashant - 24.19

5: jprashant - 18.87

9: jprashant - 45.70

13: -

17: -

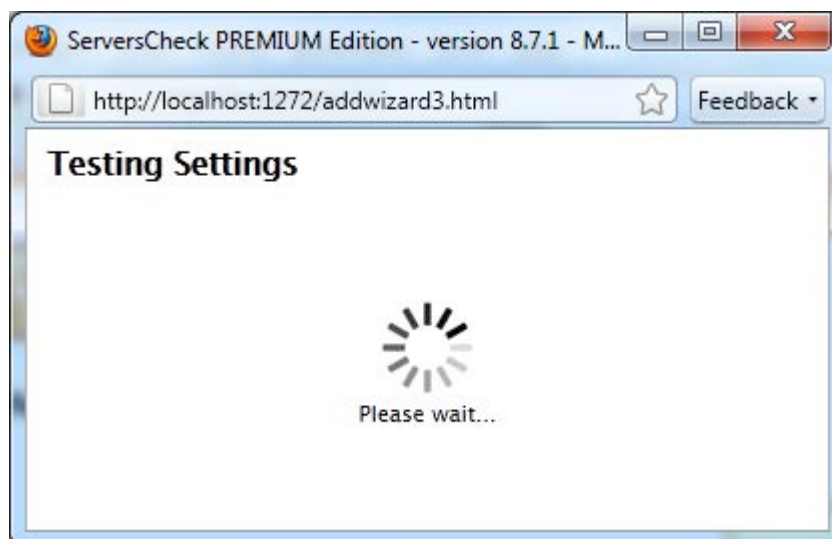
DETECT PROBES

reater than

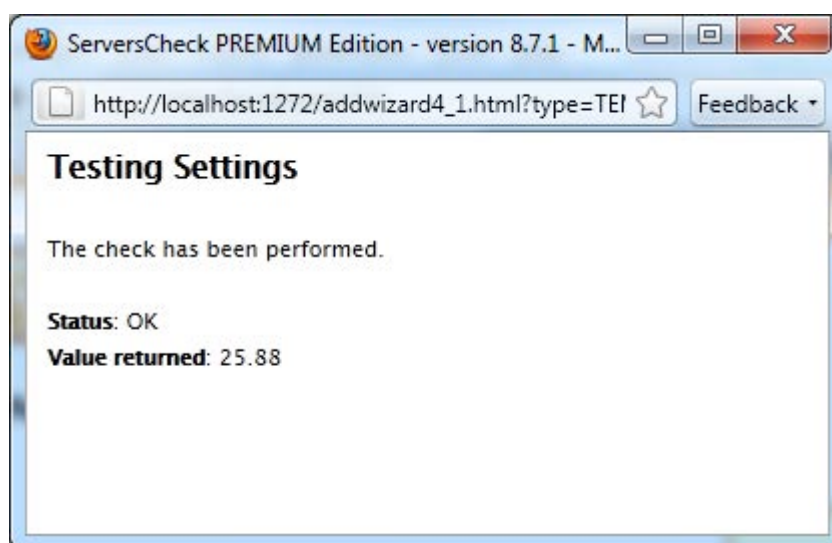
Select the probe ID from the list.

In the last line set when you want to be alerted. In the above example this is when the temperature is greater than 27° C or 81°F based on ASHRAE Standards. You can find the threshold values in our best practices document at http://www.serverscheck.com/sensors/temperature_best_practices.asp

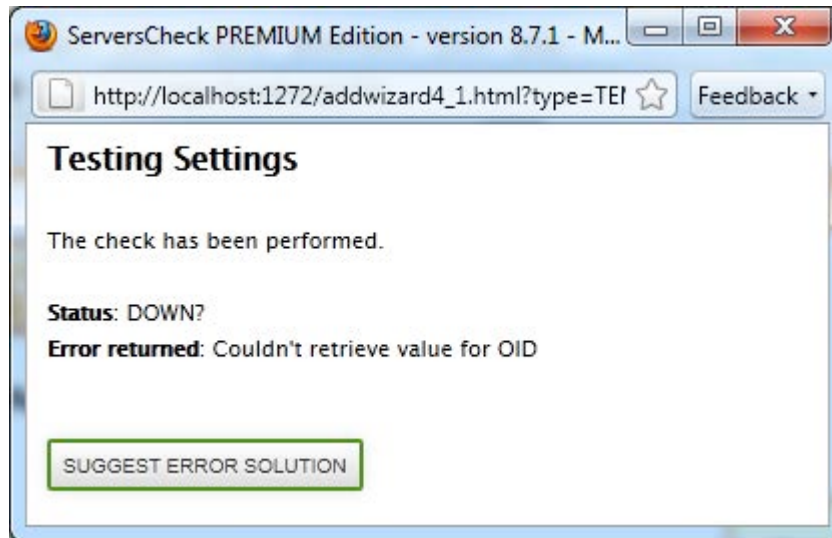
Click on **TEST SETTINGS** to verify your settings.



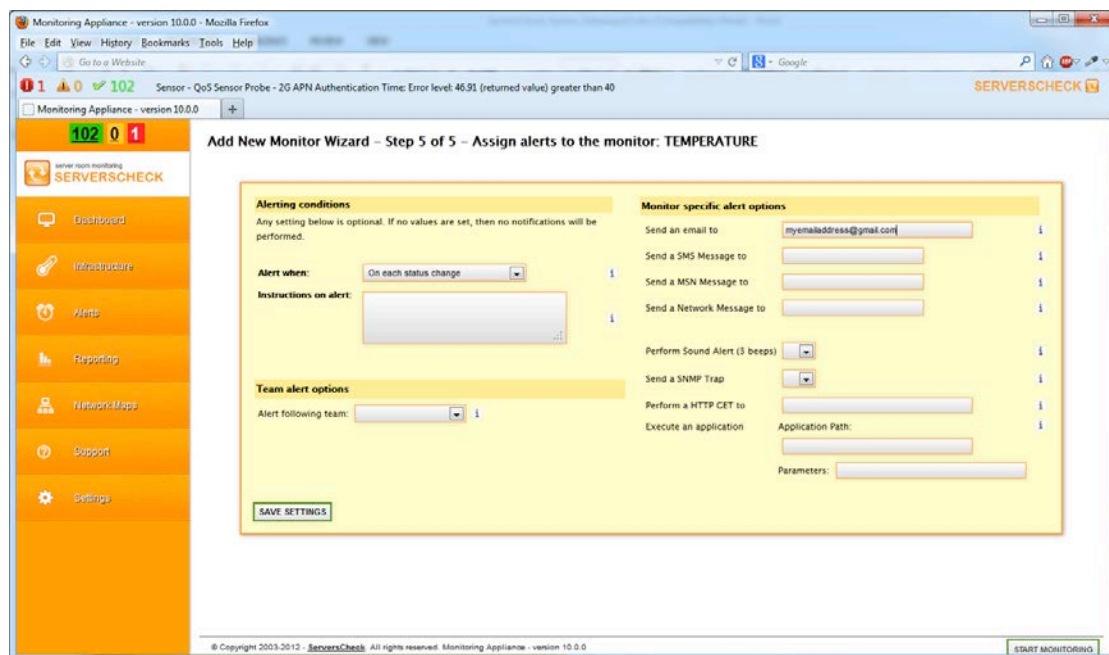
The value being returned is the temperature value as read from the sensor.



If you get a reply like in the following screen with the error “Couldn’t retrieve value for OID” then simply reboot the sensor.



Click now on the **STEP 5** button to define how you would like to be alerted.



Click on **SAVE SETTINGS**

The temperature monitor has now been added to the list of items being monitored.

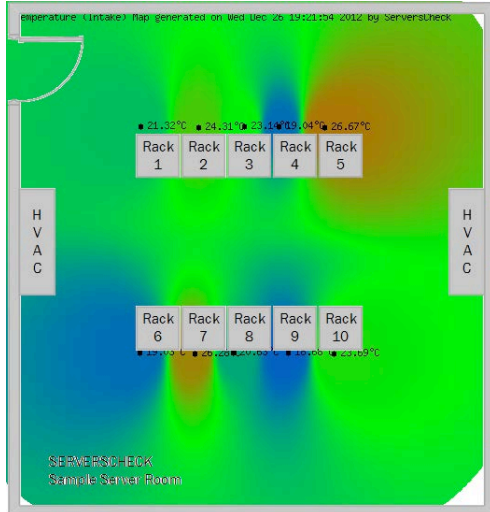
For further instructions on configuring the Monitoring Software, please visit <http://wiki.serverscheck.com>

28. Configuring heat maps in the ServersCheck Monitoring Software / Appliance

The ServersCheck Monitoring Software / Appliance has the feature as of release 10.0.0 to create heat maps for temperature, humidity and airflow.

In this chapter we assume that you have setup all your sensors as described in section 18 of this manual.

Following is a sample heat map:



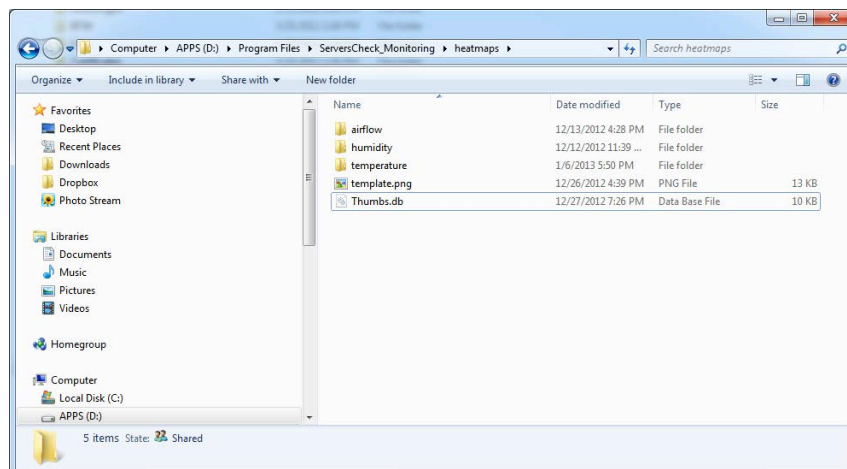
28.1. Creating a floor map of the server room or data center

The first step is to create a floor map of your server room or data center. If you don't have one ready then we recommend creating one in Visio or similar.

Important to note is that the heat map layer is plotted on top of what is white. So set your drawing to white as background.

The floor plan has to be saved in a PNG file format – this is very important. It will fail if you save it any other format than PNG

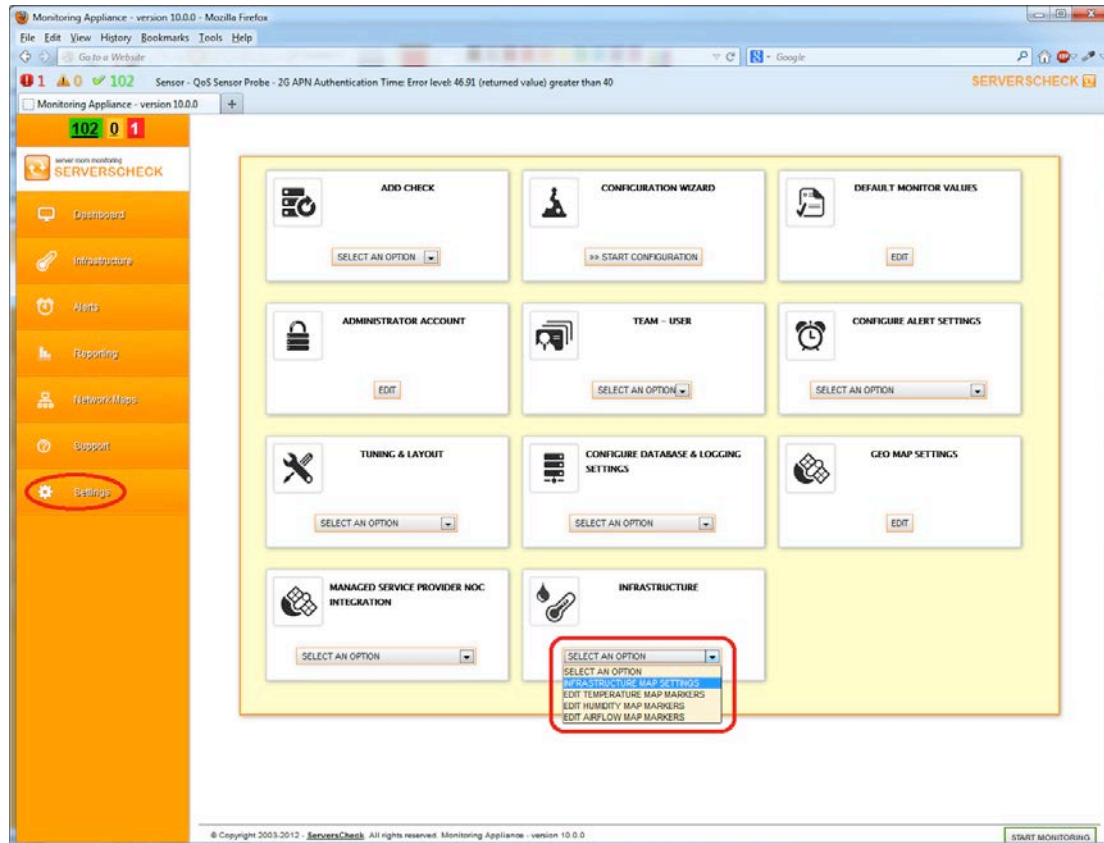
Name your file **template.png** and save it in the **/heatmaps** subfolder of your main ServersCheck_Monitoring folder



28.2. Preparing the heat maps in the ServersCheck Monitoring Software / Appliance

With your browser go to the home page of the ServersCheck Monitoring Software. Typically this is <http://myservername:1272>

Now select the option **Settings** from the home page. You will notice the **Infrastructure** tile in the settings options. Select in there the option **Infrastructure Map Settings**



On the Infrastructure Map Settings page you can configure following items:

- The temperature unit being used: Celsius or Farenheit - this is important as the software will automatically color zones based on the ASHRAE standards for server rooms & data centers
- Sensor radius: this is the width of the circle being drawn for that sensor – this allows to fine tune based on scale of floor map
- The software can create archive maps of heat maps for historic analysis & audit trails. The archived maps are stored in the respective **archive** subfolders. For temperature this is **/heatmaps/temperature/archives**

Infrastructure Map Settings

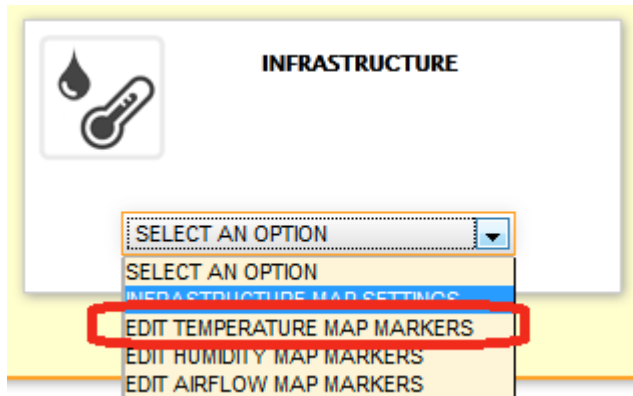
Temperature Scale ☒ ° Celsius ☐ ° Farenheit

Sensor Radius pixels

Archive heat maps every minutes

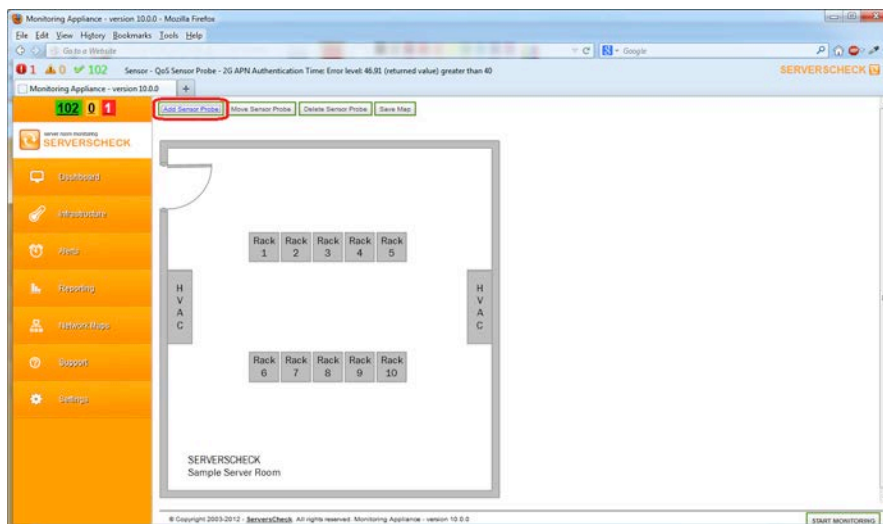
28.3. Mapping sensors on your floor plan

Now that you defined the general settings it is time to map the sensors on your floor plan.

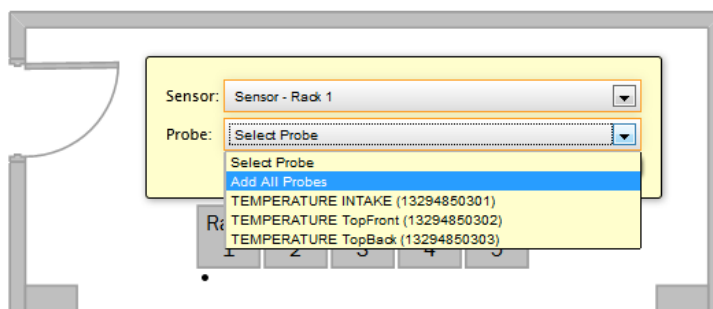
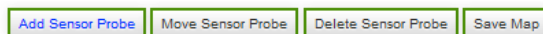


Select the option **EDIT TEMPERATURE MAP MARKERS** in the above **Infrastructure** tile on the **Settings** page of the Monitoring Software

A new page will load with the floor plan that you just saved on the server. Now click on the **Add Sensor Probe** – you will notice that the menu option turns blue indicating that it is active.



With your mouse click on the floor plan where you want your probe to be added. A new dialog window will open:



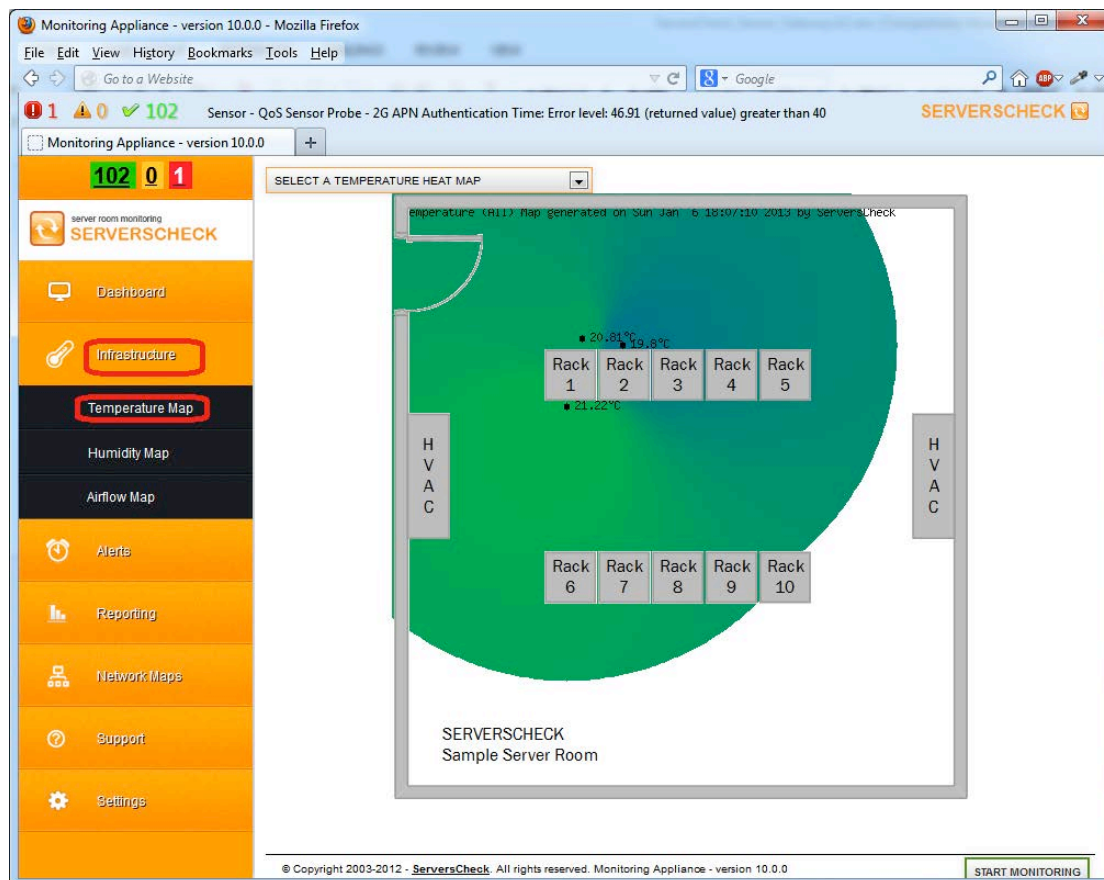
When you click on **Add All Probes** then all probes linked to that sensor (=Device in the Monitoring Software) will be added at once onto the floor map. To add individual probes, simply select the probe from the list.

Click on **Save Map** to save your mappings.

You can move a probe by clicking on the **Move Sensor Probe** button and then pointing with your mouse on a probe. The cursor will change in a cross and you can drag & drop it to the new position. Don't forget to click on the **Save Map** to save the move.

Restart the Monitoring Service once you have added all your sensor probes. It will now load your new configuration and start plotting the heat maps.

To view your heat maps click on the **Infrastructure** menu option and select the type of heat map you want to view (**Temperature, Humidity or Airflow**)



29. Power Rating

A SensorGateway can be provided with up to 12 watts of power from a PoE source. Because of this, careful power budgeting should be done especially when probes like the IO, QoS, and fuel sensors are to be utilized. Below shows the power ratings of ServersCheck sensor modules:

MODULE	POWER RATING
SensorGateway	671 mW
SensorHub	646 mW
Wireless Hub	227 mW
Temperature Sensor Probe	72 mW
Temperature/Humidity Sensor Probe	84 mW
Airflow Sensor Probe	96 mW
Shock Sensor Probe	84 mW
Power Failure Sensor Probe	119 mW
Flooding Sensor Probe	119 mW
Sound Pressure Sensor Probe	168 mW
Security Probe	323 mW
Fuel Sensor Probe	1079 mW
DC Probe	323 mW
DC Probe with Current Transducer	719 mW
AC Probe	323 mW
AC Probe with Current Transducer	1150 mW
IO Probe	371 mW
QoS Probe	347 mW

With the given power ratings, for best practices, the fuel sensor, power meter sensor probes, QoS probe and the wireless hub should be connected to a dedicated SensorGateway as they are more resource intensive in power and memory than the other ones. Know, however, that in the mentioned list, it would be completely fine to use 2 of them in combination on a single SensorGateway (i.e. SensorGateway with IO and QoS probes).